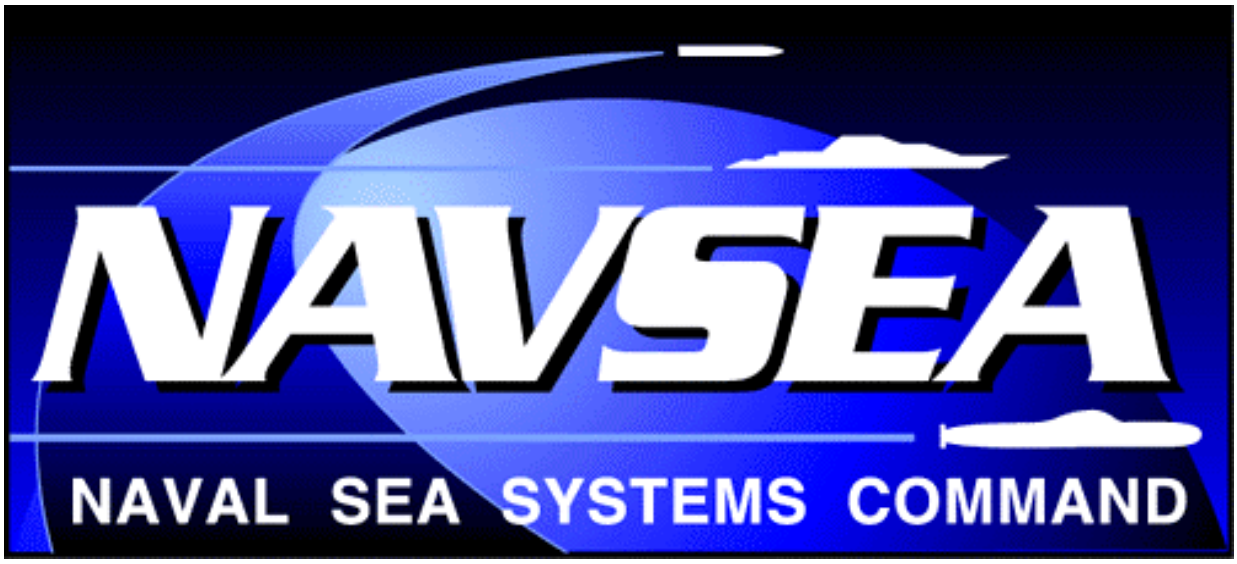
TECHNICAL SPECIFICATION
TITLE: ALTERATIONS TO SHIPS ACCOMPLISHED BY ALTERATION INSTALLATION TEAMS
NO.: TS9090-310C
DATE: JUNE 00
SUPERSEDES: TS9090-310B, dated October 97



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PUBLISHED BY
COMMANDER, NAVAL SEA SYSTEMS COMMAND

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IN REPLY REFER TO
4720
Ser 04M3/416
26 June 2000

From: Commander, Naval Sea Systems Command

Subj: NAVSEA TECHNICAL SPECIFICATION 9090-310C, ALTERATIONS TO SHIPS ACCOMPLISHED BY ALTERATION INSTALLATION TEAMS

Ref: (a) NAVSEA Technical Specification 9090-310C, Alterations to Ship Accomplished by Alteration Installation Teams

1. The purpose of this letter is to promulgate and implement reference (a) to ensure proper accomplishment and centralized control of shipboard installations and alterations performed on active and reserve fleet ships by Alteration Installation Teams (AITs). Reference (a) clearly defines the use of AITs and emphasizes that close coordination must be maintained with the cognizant Command Ship Program Manager (SPM), the applicable equipment or system Life Cycle Manager (LCM), the cognizant Planning Yard, the cognizant Type Commander (TYCOM) and, when applicable, the Naval Supervising Activity (NSA) or Regional Maintenance and Modernization Coordination Office (RMMCO).

2. Reference (a) provides requirements for the planning, estimating, scheduling, design and accomplishment of logistically supported alterations on active and reserve fleet ships by AITs and provisions for a Quality System for accomplishment of such work, except as noted in reference (a), Section 1.4. This specification is applicable for all AIT installations regardless if accomplished in CNO assigned availabilities or AIT installations accomplished outside such availabilities.

3. Reference (a) will reside on the Fleet Modernization Program (FMP) Website. To obtain a copy of reference (a) by sections or in its entirety, the URL address is http://www.fmp.navy.mil. To access reference (a), click on **Business Policy/Process**, and then **FMP Library**. Please be advised that this is a restricted website and you will be prompt to enter your FMPMIS Oracle user ID and password, or you may apply for this information. Hard copies of this document will not be distributed or stocked.

4. NAVSEA 04M3 point of contact for FMP Documentation is Mrs. Sharon Ann Shaw, SEA 04M312. Mrs. Shaw can be reached at (703) 602-1151 extension 117 or by e-mail at ShawSA@navsea.navy.mil.

M. H. Petz
By direction

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ALTERATIONS TO SHIPS ACCOMPLISHED BY ALTERATION INSTALLATION TEAMS

1. SCOPE

1.1 General

OPNAVINST 4720.2 establishes policies and procedures for the planning and management of the Fleet Modernization Program (FMP) and establishes the Ship Alteration (SHIPALT) as the vehicle for implementation of permanent configuration changes to ships and ship systems. NAVSEA SL720-AA-MAN-010/FMP implements the policies and procedures of OPNAVINST 4720.2. NAVSEA Technical Specification (NSTS) 9090-310 is an appendix of NAVSEA SL 720-AA-MAN-010/FMP for alterations to ships accomplished by alteration installation teams. This specification provides requirements for the planning, estimating, scheduling, design and accomplishment of logistically supported alterations on active and reserve fleet ships by Alteration Installation Teams (AITs) and provisions for a Quality System for accomplishment of such work, except as noted herein (see 1.4). This specification is applicable to ALL AIT installations regardless if accomplished in CNO assigned availabilities or AIT installations accomplished outside such availabilities.

a. Budgeting. Details of the budgetary process for SHIPALTs accomplished by AITs are contained in NAVSEA SL720-AA-MAN-010/FMP, Section 6.

b. Funding. SHIPALT accomplishments are funded based on the budgeted and programmed requirements. Details of financial management of SHIPALTs accomplished by AITs are contained in NAVSEA SL720-AA-MAN-010/FMP, Section 6.

1.2 Definitions

As used in this document, the following definitions apply:

a. Alteration. Any change in the hull, machinery, equipment or fittings of a ship which involves a change in design, materials, number, location or relationship of the component parts of an assembly regardless of whether it is undertaken separately from, incidental to or in conjunction with repairs.

b. Alteration Completion Report. A standardized report format provided as Appendix C to this specification used to report the completion of an alteration installation.

c. Alteration Equivalent to a Repair. An alteration which has one or more of the following attributes:

(1) The use of different material, which has been approved for like or similar use, and such materials are available from standard stock.

(2) The replacement of obsolete, worn-out or damaged parts, assemblies, or equipment, requiring renewal by a more efficient design previously approved by the cognizant SYSCOM, PEO or SPM; providing such replacement does not cause a change to the existing system design and does not effect a change to the systems or equipment normally associated with the military characteristics of the ship.

(3) The strengthening of parts that require repair or replacement in order to improve reliability of the parts and of the unit provided no other change in design is involved.

(4) Minor modifications involving no significant changes in design or functioning of equipment but considered essential to prevent recurrence of unsatisfactory conditions.

(5) The replacement of parts, assemblies, or equipment with like items of later or more efficient design where it can be demonstrated that the cost of installation and maintenance of the new parts, assemblies or components is less than the cost of maintaining the installed parts, assemblies, or components; and such replacement does not cause a change to the existing system design or affect any interfacing system design and does not effect a change to the system or equipment normally associated with the military characteristics of the ship.

Only the cognizant SYSCOM, PEO or SPM exercising technical control over the article, or the authority to whom such technical control has been delegated by that command, shall designate an alteration as an AER and approve it for accomplishment.

d. Alteration Installation Team (AIT). A unit (military, civilian or contractor) under the direction of the AIT Manager or designated agent of the AIT Manager, that is trained and equipped to accomplish specific alterations on specified ships.

e. Alteration Management Planning (AMP) Program. The Alteration Management Planning Program, under SEA 04M, provides management of alterations with a focus on Battle Force interoperability. This office, in collaboration with alteration sponsors is responsible for providing a Master List of all alterations, both permanent and temporary, with applicability to Navy ships. The Master List will indicate whether or not each planned alteration installation is considered “mature” (see

paragraph 1.2.i, below), and whether or not the planned alteration has been authorized and scheduled for installation.

f. AIT Activity or AIT Manager. The activity, military person or government civilian tasked and funded by the AIT Sponsor to initiate, plan, coordinate, schedule, manage and oversee the successful accomplishment of the alteration in accordance with FMP policy and procedures.

g. AIT Sponsor. The cognizant System Command (NAVAIR, NAVSEA, SPAWAR), Program Executive Office (PEO), Participating Manager (PARM), Ship Program Manager (SPM), FLTCINC, TYCOM, CNO or other sponsor which tasks and funds the AIT.

h. Alteration, permanent. Any logistically supported alteration, which is intended to remain on board the ship for more than one year or more than one operational deployment. These alterations are accomplished as Ship Alterations (SHIPALTs), Alterations Equivalent to a Repair (AERs), TYCOM Alts, and other SYSCOM and TYCOM alterations (e.g. Field Changes (FCs), Engineering Changes (ECs), etc.)

i. Alteration, mature. An alteration that has a reasonable expectation of successful installation, operation, maintenance and interoperability and is fully supported logistically.

j. Alteration, temporary (TEMPALT). Any alteration which provides given capabilities on a temporary basis (not to exceed one [1] year or one [1] operational deployment in duration). TEMPALTs support Research, Development, Test and Evaluation (RDT&E) exercise or mission requirements. TEMPALTs are reviewed and technically approved by the cognizant Ship’s Program Manager (SPM) and authorized for accomplishment by the cognizant TYCOM. The SPM review considers logistic support, safety, technical adequacy, impact on ship stability, operational characteristics, damage control, ship structure, ship services, ship interfaces and habitability. ILS (final or preliminary) needs to be identified on the TEMPALT authorization letter and provided at time of install. Alterations which are intended to be installed for a period in excess of one year or for more than one operational deployment are permanent changes to a ship’s configuration and shall be accomplished accordingly (see “Alteration, permanent”). After completion of testing requirements, mission or exercise support requirements or one year, whichever comes first, TEMPALTs must be removed and the ship restored to its previous configuration. The activity sponsoring the accomplishment of the TEMPALT shall be responsible for funding the removal of the TEMPALT and the restoration of the ship.

k. As-Builts. Drawings prepared or developed by an AIT, approved by the Planning Yard, used for installation and revised to indicate the actual, as installed, configuration on the ship.

l. Battle Force Baseline Configuration Alterations. Alterations authorized in support of the Battle Force configuration, as determined by the Fleet CINC and SEA 53 under the D-30 process. These alterations are approved by the SPM and coordinated with the Alteration Management Planning (AMP) office, AMP Field Coordinating Offices (FCOs) and NSAs, in accordance with this document.

m. Equipment Alteration. Any modification, other than a SHIPALT, to the configuration of an equipment or system (including embedded equipment, computer programs and expendable ordnance) after establishment of the product baseline. An Equipment Alteration involves a change in design, type of material, quantity, installed location, logistics, supportability or the relationship of the component parts of an assembly within the ship or shore installation. Equipment Alterations include the addition, deletion, rework or replacement of parts, assemblies or equipment; or changes in assembly procedures. Alterations to associated computer programs include the incorporation of different computer program versions and approved modification or corrections to both operational test and maintenance programs. Equipment Alterations are initiated by approved Class I Engineering Change Proposals (ECPs). Equipment Alterations apply equally to changes installed in delivered systems and equipment, and changes installed in systems and equipment in production to identify differences from an established product baseline. Equipment Alterations may be initiated to correct a design defect, to change equipment operational capability, to eliminate safety hazards, to update obsolete components or for any combination of these reasons. There are five types of Equipment Alterations:

(1) Machinery Alteration (MACHALT). A planned change, modification or alteration of any hull, mechanical or electrical (HM&E) equipment in service (shipboard or ashore) when it has been determined by the MACHALT Configuration Control Board that the alteration or modification meets all of the following conditions:

(a) Can be accomplished without changing an interface external to the equipment or system.

(b) Are modifications made within the equipment boundary or is a direct replacement of the original equipment system.

(c) Can be accomplished without the ship being in an industrial activity.

(d) Will be accomplished individually and not conjunctively with a SHIPALT or other MACHALT.

If power, weight or air conditioning requirements are modified, the modification must be discussed with the appropriate SPM, who will decide whether to proceed with the modification as a MACHALT or SHIPALT.

(2) Ordnance Alteration(ORDALT). An ORDALT is a change made to ordnance equipments or their computer programs by the addition, deletion, rework or replacement of parts, assemblies or equipment, or by a change in assembly procedures.

(3) Field Change (FC). A mechanical, electronic or electrical change, modification or alteration made to electronic equipment after delivery to the government or installation on board ship, including software changes, which does not impact interfaces to other equipment within the ship, change the footprint, form or fit or change power, weight or air conditioning requirements. If power, weight or air conditioning requirements are modified, the modification must be discussed with the appropriate SPM, who will decide whether to proceed with the modification as a field change or SHIPALT. Field Changes are initiated and approved by the cognizant Systems Command and are implemented by Field Change Bulletin (FCB). AIT or Ship's Force can accomplish FCs. For these specific types of alterations, the cognizant SPM shall be notified of the approved changes effecting their respective platforms, shall be periodically advised of installation status and shall be notified of any logistics upgrades which have been completed as a result of the alteration.

(4) Engineering Change (EC). A modification, usually to Under-Sea Warfare (USW) equipment or systems, or other equipment groups as designated by the cognizant Systems Command, PMs, PARMs and CCBs.

(5) Alteration & Improvement (A&I) Item. Tests inspections and minor alterations to submarines and submarine tenders. No significant ILS impact or significant material required. A&I items are approved by NAVSEA and authorized by TYCOM.

n. Hardware Systems Commands (HSC) - COMNAVSEASYSCOM is the lead hardware systems commander for the life cycle management of ships. Commander, Naval Air Systems Command and Commander, Space and Naval Warfare Systems Command are also hardware systems commands. They must coordinate with COMNAVSEASYSCOM in the development of technical requirements essential to performing

quality maintenance. The HSC provides NAVSUP with sufficient, accurate, and up-to-date technical information to ensure consistent procurement and control of material that fulfills all technical requirements.

o. Industrial activity. Any activity that has the capability to perform all aspects of industrial work on ships. These activities generally include Naval Bases, Naval Ship Repair Facilities (NSRFs), Intermediate Maintenance Facilities, Trident Refit Facilities (TRFs), public (Naval) shipyards and private shipyards which hold Agreements for Boat Repair (ABR) or Master Ship Repair (MSR) Agreements in accordance with the NAVSEA Supervisor of Shipbuilding, Conversion and Repair, USN (SUPSHIP) Operations Manual.

p. Maintenance Program Master Plan. The Maintenance Program Master Plan provides a general overview of the cognizant Program Executive Office's (PEO's) and/or Ship Program Manager's (SPM's) maintenance plan for the ship class. It specifies key elements such as: depot-level availability intervals and durations, frequency or intermediate-level availabilities, and any special maintenance, maintenance support, or infrastructure requirements.

q. Naval Supervising Activity (NSA). Single Naval activity charged with the responsibility of oversight of work being accomplished on U.S. Naval ships during any type of availability. NSA's are responsible for controlling AIT access to ships at the industrial activities under their cognizance. Further, NSA's are responsible for ensuring that the AIT's intended work is authorized and that the AIT's are in compliance with this instruction. For AIT work conducted during periods in which the naval shipyards or SUPSHIP offices do not have oversight, NSA functions concerning the oversight of AIT work, including gatekeeping, production coordination, and quality assurance functions, will be the responsibility of the cognizant RMMCO office (where stood up) or as designated by the cognizant TYCOM. Neither the AIT tasking activity, the team supervisor or the AIT is the NSA for the purpose of this technical specification.

r. Quality System. A documented Quality System, which will assure that all provided supplies and services conform to a prescribed level of quality. For alterations accomplished on ships, the minimum prescribed level of quality shall be that specified in Master Ship Repair Agreements (MSRA) and Agreement for Boat Repair (ABR) as outlined in NAVSEA Standard Item 009-04. (See Appendix D)

s. Quick reaction alteration. Quick reaction alterations are those alterations (permanent or temporary, unplanned or

unscheduled), which are required to be accomplished to support urgent or emergent requirements.

t. Red Lines or Red Lined Installation Drawings. Planning yard approved SHIPALT Installation Drawings (SIDS) which have been revised manually (preferably in red ink) by the AIT to reflect all approved deviations and variances of the completed installation.

u. Regional Maintenance and Modernization Coordination Office (RMMCO). A regional Maintenance Center-aligned Fleet-chartered organization which serves as the primary point of entry for all waterfront related alteration and maintenance activities. The RMMCO will effect detailed integration scheduling of all maintenance and modernization evolutions involving ships under that RMC's cognizance and will serve as the "gate keeping" office for AIT check-in and check-out where applicable for all non-CNO availability timeframes. The RMMCO is responsible for oversight of AIT work conducted during the maintenance periods that are not supervised by a naval shipyard, NSRF, or SUPSHIP office.

v. Scheduled/Non-Scheduled availabilities. A CNO Scheduled Availability is a depot level maintenance window, which is scheduled by CNO in accordance with the Maintenance Program Master Plan for the ship.

(1) CNO Scheduled Maintenance Availabilities greater than six months in duration are:

Overhaul. An availability scheduled for accomplishment of industrial maintenance and modernization. Types of availabilities include:

Regular Overhaul.
Complex Overhaul
Engineered Overhaul
Refueling Overhaul
Refueling Complex Overhaul
Engineered Refueling Overhaul

Other Availabilities. An availability scheduled primarily for industrial maintenance and installation of major, high priority alterations. Types of these include:

Depot Modernization Period
Planned Incremental Availability
Docking Planned Incremental Availability

(2) CNO scheduled maintenance availabilities less than six months in duration are short, labor intensive availabilities scheduled for accomplishment of industrial

maintenance and modernization. Types of these availabilities include:

Selected Restricted Availability (SRA)
Docking SRA
Phased Maintenance Availability (PMA)
Docking Phased Maintenance Availability
Service Craft Overhaul
Extended SRA
Extended Docking SRA
Incremental SRA

(3) NON-CNO Scheduled Availability. An availability which is not scheduled by CNO. The FLTCINCs/TYCOMs assign and schedule Restricted Availability (RAV), Technical Availability (TAV) and Voyage Repair (VR) availability.

w. Ship Alteration (SHIPALT). An approved permanent change to the configuration of a ship which is documented as a SHIPALT Record (SAR) and implemented through the FMP Process. SHIPALTs are classified by title.

(1) Title D SHIPALT. A permanent alteration that is equivalent to a repair, does not affect the military characteristics of a ship and may require Centrally Procured Material (CPM) but does not require Headquarters CPM (HCPM) for accomplishment. Title D alterations generally include more efficient, cost effective designs that improve ship maintainability. Title D alterations are technically approved by COMNAVSEASYSCOM and authorized for accomplishment by the FLTCINC or TYCOM.

(2) Title F SHIPALT. A permanent alteration that does not affect the military characteristics of a ship, does not require CPM and is within the capabilities of ship’s force to accomplish. Title F alterations are technically approved by COMNAVSEASYSCOM and authorized for accomplishment by the FLTCINC or TYCOM.

(3) Title K SHIPALT. A permanent alteration to provide a military characteristic, upgrade existing systems or additional capability not previously held by a ship which affects configuration controlled areas or systems of a ship or which otherwise requires the installation of HCPM. These SHIPALTs are approved for development and authorized for accomplishment by the CNO (military improvements) or the Hardware Systems Command (HSCs) (non-military improvements). The technical approval for Title K SHIPALTs is provided by COMNAVSEASYSCOM .

(4) Title K-P SHIPALT. A Title K SHIPALT which is within forces afloat or Alteration Installation Team (AIT)

capability for accomplishment, and for which special program and centrally provided materials required for accomplishment of these alterations are provided as a package by the cognizant HSC.

x. Type Commander Alterations (TYCOMALTs). TYCOMS are authorized to approve temporary changes to compartments of ships, other than nuclear support facilities or compartments adjacent to ship nuclear support facilities, through use of TYCOMALTs subject to the requirements laid out in OPNAVINST 4720.2(Series).

1.3 Applicability. This specification is applicable to all alterations accomplished on any U.S. Navy ships, including surface ships, submarines and service craft (hereafter collectively referred to as “ships”) by AITs except as noted herein (see paragraph 1.4).

1.4 Exceptions. This specification does not apply to:

a. Alterations to nuclear components and systems under the cognizance of the Deputy Commander for Nuclear Propulsion (NAVSEA 08).

b. Strategic Systems Program Alterations (SPALTs) issued by the Director, Strategic Systems Programs (DIRSSP).

c. Temporary modifications performed as part of a shipyard availability to support industrial work or associated testing.

d. Temporary Alterations (TEMPALTs) to be accomplished on submarines. NAVSEAINST 4720.14 and NAVSEA S9070-AA-MME-010/SSN/SSBN provide policy and procedures for submarine TEMPALTs. The requirements of this document are applicable to FLTCINC or TYCOM authorized TEMPALTs being installed on surface ships and service craft to support Research, Development, Test and Evaluation (RDT&E) programs or in support of mission or exercise requirements. The applicability of this document to TEMPALTs in support of sea trials on surface ships and service craft is at the discretion of the cognizant SPM.

e. Alterations accomplished as part of the submarine deployed site program such as Submarine Engineered Operating Cycle Modernization (SEOC MOD) availabilities.

f. Installation support personnel and certification teams, which only provide technical guidance, equipment check-out and grooming, certification of systems or on-site training for ship’s force not associated with the accomplishment of an alteration.

1.5 Cancellation. This technical specification cancels and supercedes NAVSEA Technical Specification 9090-310B.

2. REFERENCED DOCUMENTS

2.1 Issues of Documents. The following documents form a part of this specification to the extent specified herein.

SPECIFICATIONS

NAVSEA

Technical Specification 9090-100 - SHIPALT Technical Liaison Services, Waivers, and Deviations

Technical Specification 9090-600 - Ship Alteration (SHIPALT) Installation Drawing (SID) Preparation

Technical Specification 9090-700 - Ship Configuration and Logistics Support Information System (SCLSIS)

PUBLICATIONS

CHIEF OF NAVAL OPERATIONS

OPNAVINST 4720.2 (series) - FLEET MODERNIZATION PROGRAM (FMP), PLANNING PROCEDURES FOR

OPNAVINST 4790.4 (series) - SHIPS MAINTENANCE AND MATERIAL MANAGEMENT (3-M) MANUAL

COMMANDER IN CHIEF ATLANTIC FLEET/COMMANDER IN CHIEF PACIFIC FLEET

CINCLANTFLT/CINCPACFLTINST 4790.3 - JOINT FLEET MAINTENANCE MANUAL

CINCLANTFLT/CINCPACFLT 4720.3 (SERIES) Management of Afloat Combat Systems and C4I Installations and Improvements

NAVAL SEA SYSTEMS COMMAND

NAVSEA 0902-018-2010 - General Overhaul Specifications for Deep Diving Submarines (GOS)

NAVSEA 0924-062-0010 - Submarine Material Certification Requirements Manual for the Submarine Safety Program

NAVSEA S9040-AA-GTP-010/SSCR - Shipboard Systems Certification Requirements for Surface Ship Industrial Periods (Non-Nuclear)

NAVSEA S9070-AA-MME-010/SSN/SSBN - Guidance Manual For Temporary Submarine Alterations

NAVSEA S9AAO-AB-GOS-010/GSO - General Specification for Overhaul of Surface Ships

NAVSEA S9AA0-AB-GOS-030 - General Specification for Overhaul of Surface Ships (GSO) AEGIS Supplement

NAVSEA SL720-AA-MAN-010/020 - Fleet Modernization Program Management and Operations Manual (Volumes 1 & 2)

NAVSEA T9066-AA-MAN-010 - Navy Outfitting Program Policy and Procedures Manual

NAVSEAINST 2450.2 - ELECTROMAGNETIC COMPATIBILITY

NAVSEAINST 4720.3 (series) – PROCESS FOR INITIATING, APPROVING AND SCHEDULING AFLOAT C4I SYSTEMS INSTALLATIONS AND UPGRADES

NAVSEAINST 4720.11 (series) - SHIPBOARD INSTALLATIONS AND MODIFICATIONS PERFORMED BY ALTERATION INSTALLATION TEAMS

NAVSEAINST 4720.14 (series) - TEMPORARY ALTERATIONS TO ACTIVE FLEET SUBMARINES; CONTROL OF

NAVSEAINST C9210.4 - CHANGES, REPAIR AND MAINTENANCE TO NUCLEAR POWERED SHIPS

NAVSEAINST 9304.1 - SHIPBOARD ELECTRICAL CABLE AND CABLEWAY INSPECTION AND REPORTING PROCEDURES

NAVSEA Standard Items (These can be obtained from the web site http://www.supship.navy.mil/ssrac4/standard.htm)

NATIONAL SECURITY TELECOMMUNICATIONS AND INFORMATION SYSTEMS SECURITY MEMO

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3. REQUIREMENTS

3.1 General. OPNAVINST 4720.2 establishes policies and procedures for the planning and management of the Fleet Modernization Program (FMP) and establishes the Ship Alteration (SHIPALT) as the vehicle for implementation of permanent configuration changes to ships and ship systems. NAVSEA SL720-AA-MAN-010/FMP implements the policies and procedures of OPNAVINST 4720.2. NAVSEAINST 4720.11 defines the use of AITs in this process and in the accomplishment of TEMPALTs. This specification outlines the process to be followed for the

planning, estimating, scheduling, and accomplishment of all alterations (except as defined in paragraph 1.4), both permanent and temporary, to ships by AITs.

3.1.1 Quick reaction alteration accomplishment. In the event that an AIT Manager is directed to accomplish an unplanned/unscheduled alteration, the accomplishment of that alteration shall be in accordance with the requirements outlined in this specification. If provisions of this specification can not be met, the AIT Manager shall submit a waiver request to the applicable SPM for approval, as defined by CNO policy, with an information copy to the cognizant Planning Yard, TYCOM, cognizant NSA and other activities as appropriate. Waiver requests may be made by letter or message, shall explain why specific provisions of this specification cannot be met, and shall indicate when these provisions will be corrected/completed. Initiation of work impacting the material readiness of the ship shall not begin until the waiver is granted. In all cases, the AIT Manager should begin immediate liaison with the cognizant NSA to facilitate rapid installation completion.

3.2 Pre-installation SHIPALT and Equipment Alterations (MACHALT, ORDALT, Field Changes (FC), Engineering Change (EC)) Requirements.

3.2.1 Initial determination of SHIPALT/Equipment Alteration accomplishment by AIT. The initial determination that a given SHIPALT/Equipment Alteration could be accomplished by an AIT is usually made by the Chief of Naval Operations (CNO) Resource Sponsors (military improvements), the cognizant SYSCOM (technical improvements) or the TYCOMs (AERs) when the alteration is approved as a feasible and desirable requirement. In general an AIT should be used when the technical and/or specific nature of the work requires an AIT, a substantial government financial savings can be obtained, flexibility of an AIT is required due to short timeframe installs, or substantial "lessons learned" can be obtained from re-using the same team.

3.2.2 Equipment Alteration development. The cognizant Life Cycle Manager (LCM) should begin alteration development in accordance with the configuration control requirements of the applicable equipment prior to, or concurrent with, the initial determination that a given alteration is to be accomplished by an AIT. A determination should also be made of whether or not ship, system or equipment certification in accordance with NAVSEA S9040-AA-GTP-010/SSCR will be required upon completion of the alteration development. This determination is part of the alteration development. If certification is required, the activity to perform certification testing should be determined when the activity that will be assigned the responsibilities of AIT is determined. The AIT Manager will ensure that the alteration

development effort is fully coordinated with the cognizant SPM(s) and Life Cycle Manager (LCM).

3.2.3 SHIPALT development. Prior to, or concurrent with, the initial determination that a given SHIPALT is to be accomplished by an AIT, the cognizant Systems Command should begin alteration development. This will include development and approval of a Justification Cost Form (JCF), in accordance with NAVSEA Tech Spec 9090-210 or equivalent, and entry of the requirement into the FMP Management Information System (FMPMIS) database. SHIPALT development also includes updating of applicable configuration baseline documentation, coordination with the applicable Planning Yard to avoid creating interference with other SHIPALT designs, and completion of SHIPALT Record (SAR) development, in accordance with NAVSEA Tech Spec 9090-500B. The SPM, for all alterations under his cognizance, must also determine whether ship or system certification in accordance with NAVSEA S9040-AA-GTP-010/SSCR will be required upon completion of the alteration, select the activity which will be assigned the responsibilities of AIT and, when applicable, select the activity to perform certification testing. The AIT Manager will ensure that the AIT effort is fully coordinated with the cognizant SPM, Life Cycle Manager (LCM), the cognizant NSA and Planning Yard.

3.2.3.1 Initial entry of a SHIPALT requirement into FMPMIS. The SPM shall enter a SHIPALT requirement into the FMPMIS database using procedures indicated in NAVSEA SL720-AA-MAN-010/020 as soon as the requirement is approved, generally after approval of the JCF and assignment of the SHIPALT number. The FMPMIS entry should indicate that the alteration is capable of being accomplished by an AIT. Material/equipment which has been identified in the JCF as being procured by the AIT from the Federal Supply System should be entered into FMPMIS by the SPM as part of the initial SHIPALT entry so that the applicable procurement activity can be aware of the requirement.

3.2.3.2 Cost Estimating for SHIPALTs. When the SHIPALT is entered into FMPMIS as “AIT CAPABLE”, an estimate of the cost of alteration accomplishment by AIT, to include additional industrial support services required by the AIT, but not within AIT capability, will be entered as well as an estimate of the cost of alteration accomplishment by an industrial activity. At the JCF stage of alteration definition, costs are difficult to estimate with any degree of accuracy, but provisions for these requirements must be made. The estimate will be entered into FMPMIS by the SPM after approval of the JCF. After the SAR is prepared and the full extent of the SHIPALT has been defined, more accurate estimates must be developed and entered into FMPMIS by the SPM to provide a more accurate basis for budget development. The following factors must be considered in the development of the cost estimate:

a. Installation manday estimates for JCFs. Installation mandays are the number of mandays required to actually accomplish the SHIPALT. This includes certification testing (if required), along with certification test report development, and all associated incidental work. Incidental work includes interference removal and reinstallation, fastener replacement, replacement of damaged insulation and deck matting, cableway banding, painting, clean-up, training, documentation update, etc. Also included are industrial support services (e.g. crane services, local office facility, electricity, hazardous waste disposal, welding, compressed air, and other services listed in paragraph 3.4.3 of this specification) not provided by the AIT; these services may be provided by a Naval Station outside of a CNO scheduled availability, or by a Naval Shipyard or ABR/MSR contractor during a CNO scheduled availability. The JCF for SHIPALT accomplished by AITs shall reflect the number of mandays required to accomplish the alteration in its entirety, including the incidental work described herein. After the SAR is prepared and the full extent of the SHIPALT is defined, a more accurate estimate shall be developed and entered into FMPMIS by the SPM.

b. Planning mandays for JCFs. Planning mandays are those mandays required to perform the necessary planning to accomplish an alteration on one ship. This includes mandays to be expended for the acquisition of AIT-furnished material, prefabrication of assemblies, equipment burn-in, packaging/crating of equipment, management functions and, when applicable, certification test plan development. At the JCF stage of SHIPALT development, required planning mandays are difficult to estimate with any degree of accuracy but some provision for these requirements must be made. After the SAR is prepared and the full extent of the SHIPALT has been defined, a more accurate estimate shall be developed and entered into FMPMIS by the SPM.

c. Incidental material estimates for JCFs. Incidental material is that material which the AIT will be required to procure to accomplish a SHIPALT. This includes all material not being supplied as Headquarters Centrally Procured Material (HCPM), including consumable materials such as welding rods, paint, etc., required to complete a SHIPALT. After the SAR is prepared and the full extent of a SHIPALT is defined, a more accurate estimate shall be developed and entered into FMPMIS by the SPM.

3.2.4 Planning. The AIT Manager should begin planning a tentative schedule of alteration accomplishment as soon as the determination is made to accomplish the alteration by AIT. For SHIPALTS, the planning schedule should be based on SPM approval of SAR, SID and ILS, and the schedule of equipment delivery, the availability of AITs, the availability of ILS products, and the anticipated industrial availability schedules of applicable ships. For Equipment Alterations, the planning schedule should

be based on the schedule of alteration kit deliveries, the availability of AITs, the availability of ILS products and the anticipated industrial availability schedules of applicable ships. If system certification, in accordance with NAVSEA S9040-AA-GTP-010/SSCR, is required for SHIPALTS or Equipment Alterations , the certification testing schedule must also be included. The planned schedule of accomplishment and, if applicable, system certification should be fully coordinated with the cognizant SPM(s), the LCM (if not the AIT Manager), Alteration Management Planning (AMP) organization, the cognizant NSA , Planning Yard(s), and the TYCOM(s). If the SHIPALT or Equipment Alteration is planned for accomplishment during a CNO scheduled availability, the schedules of alteration accomplishment and system certification shall also be coordinated with the cognizant NSA. The NSA will normally require submission of a tentative SHIPALT or Equipment Alteration installation schedule at A-180 days, for CNO Scheduled Availabilities, in order to ensure its integration into the overall production schedule. If the SHIPALT or Equipment Alteration is to be accomplished by someone other than the prime contractor/shipyard, the AIT will be allowed access to spaces and systems on a not-to-interfere basis with prime contractor/shipyard priority work.

3.2.5 Scheduling

a. TYCOM AIT Scheduling Process for SHIPALTS/Equipment Alterations/TEMPALTS.

(1) Outside of Scheduled CNO Availabilities. The AIT activity or the AIT Manager shall present the proposed alteration accomplishment schedule to the SPM and TYCOM for coordination and concurrence. This will allow advance notification to applicable ships, the cognizant Configuration Data Manager (CDM), the cognizant NSA and the cognizant Planning Yard of the intent to accomplish the alteration. For SHIPALTS and TEMPALTS this information is entered into the Fleet Modernization Program Management Information System (FMPMIS). For all other equipment alterations, this information is electronically transferred into the Alteration Installation Planning System (AIPS) or manually entered into the Global Alteration Installation Team Scheduling (GAITS) database. This becomes the actual programming of the alteration for accomplishment outside of a scheduled CNO availability. In addition, if affected ships have the Shipboard Non-tactical ADP Program (SNAP) installed, the information will be transmitted to the ship. For ships that do not have SNAP installed, a hard copy Mini-COSAL must be developed by the Naval Inventory Control Point (NAVICP), Mechanicsburg, and returned to the AIT. The AIT must have this document at the time of alteration accomplishment. At the time of entry in FMPMIS, AIPS

or GAITS, an OPNAV Form 4790/2K is required to be provided to the TYCOM for loading in the Regional Maintenance Automated Information System (RMAIS) shore file to document the scheduling and, later, the accomplishment of the alteration in 3M. Additionally, if the AIT will require industrial support as listed in paragraph 3.4.3 of this specification (e.g., crane and rigging services, welding/burning, compressed air, etc.) during accomplishment of the alteration, additional information (OPNAV Form 4790/2K) requesting these services will be provided for loading into the RMAIS shore file.

(2) During Scheduled CNO Availabilities. The AIT activity or the AIT Manager shall present the proposed alteration accomplishment schedule to the SPM and TYCOM for coordination and concurrence. This will allow advance notification to applicable ships, the cognizant Configuration Data Manager (CDM), the cognizant NSA and the cognizant Planning Yard of the intent to accomplish the alteration. For SHIPALTS and TEMPALTS this information is entered into the Fleet Modernization Program Management Information System (FMPMIS). For all other equipment alterations, this information is electronically transferred into the Alteration Installation Planning System (AIPS) or manually entered into the Global Alteration Installation Team Scheduling (GAITS) database. This becomes the actual programming of the alteration for accomplishment outside of a scheduled CNO availability. In addition, if affected ships have the Shipboard Non-tactical ADP Program (SNAP) installed, the information will be transmitted to the ship. For ships that do not have SNAP installed, a hard copy Mini-COSAL must be developed by the Naval Inventory Control Point (NAVICP), Mechanicsburg, and returned to the AIT. The AIT must have this document at the time of alteration accomplishment. At the time of entry in FMPMIS, AIPS or GAITS, an OPNAV Form 4790/2K is required to be provided to the TYCOM for loading in the Regional Maintenance Automated Information System (RMAIS) shore file to document the scheduling and, later, the accomplishment of the alteration in 3M. Additionally, if the AIT will require industrial support as listed in paragraph 3.4.3 of this specification (e.g., crane and rigging services, welding/burning, compressed air, etc.) during accomplishment of the alteration, additional information (OPNAV Form 4790/2K) requesting these services will be provided for loading into the RMAIS shore file.

The AIT Manager shall request the cognizant SPM to include the alteration in the Availability Advance Planning Letter and in the subsequent Availability Authorization Letter for that CNO availability. The AIT Manager shall keep the cognizant TYCOM, the LCM (if not the AIT Manager), the cognizant SPM, the CNO availability planning activity, the cognizant Configuration Data Manager (CDM), the cognizant Planning Yard, and the cognizant NSA informed of the AIT’s schedule and any schedule changes. In addition, the required support services must be specified as described Standard Work Template (SWT) 980-01, “Support Services,

Provide". The cognizant NSA can then prepare a 4E specification work item in accordance with the SUPSHIP Operations Manual for inclusion in the CNO availability solicitation for private sector industrial availabilities, or a job summary and Task Group Instruction (TGI) for naval shipyard availabilities.

b. Urgent Scheduling. For urgent or emergent alterations, (including Equipment Alterations), which do not have sufficient lead time for proper scheduling, upon SPM providing approval, scheduling, in the most expeditious manner available, will be accomplished directly with the TYCOM or the TYCOMs designee. Once scheduling is established, the cognizant SPM, AIT Manager, the LCM (if not the AIT Manager), the Planning Yard, the CDM, and the cognizant NSA shall be notified of the schedule. At this same time, an OPNAV Form 4790/2K is to be provided to the TYCOM for loading in the Regional Maintenance Automated Information System (RMAIS) shore file to document the scheduling and, later, the accomplishment of the alteration in 3M. Additionally, if the AIT will require industrial support (e.g., crane and rigging services, welding/burning, compressed air, etc.) during accomplishment of the alteration, an additional OPNAV Form 4790/2K requesting these services will be provided to the TYCOM for loading in the RMAIS shore file. The AIT Manager shall keep the cognizant TYCOM, the cognizant SPM, the cognizant Configuration Data Manager (CDM), the cognizant Planning Yard, and the cognizant NSA informed of any schedule changes.

c. Scoping and Readiness Assessments. At the time the alteration schedule is presented to the TYCOM, the AIT shall provide an assessment of the size of the effort (number of mandays), estimated total length of time required to complete the installation (number of calendar days) and the possible impact on ship readiness requirements. When required, the TYCOM will take action to establish a Restricted Availability (RAV) or Technical Availability (TAV) in coordination with the appropriate operational commander unless the alteration is scheduled to be accomplished during a CNO scheduled availability. Following TYCOM approval for installation during any period other than a CNO availability, the AIT will contact the cognizant NSA to facilitate generation of a detailed ship installation schedule, inclusion of the ALT installation into the ship's maintenance and modernization work integration plan, determination of potential cross-task common support opportunities, determination of common "trade" tasks that might be accomplished under the NSA's auspices and determination of common service (e.g., electrical power, water, etc.) cost allocation.

3.2.6 AIT tasking. An AIT activity must be tasked to accomplish a specific alteration by the applicable equipment/system LCM (NAVAIR, NAVSEA, SPAWAR), by the cognizant SPM, or by TYCOMs. AITs should be tasked as soon as funding is identified, as early in the fiscal year as possible to allow the AIT the maximum

possible planning time. The tasking may be in one or two parts, depending on the level of involvement the AIT is to have. If the alteration design and ILS documentation is to be prepared by another activity (usually the applicable Planning Yard), the AIT may be tasked only for procurement of required long lead time and incidental material and accomplishment of the SHIPALT. The AIT Manager shall ensure copies of the tasking (and all subsequent changes) are forwarded to the SPM, the equipment/system LCM, the AMP office (SEA 04M5) and the applicable Planning Yard. AIT managers will ensure that all AITs under their control are directed to report to the applicable NSA prior to boarding the ship.

3.2.6.1 Design development tasking. Normally the applicable Planning Yard will be tasked and funded to develop the detailed design and associated drawings for SHIPALTs. When design development for a Title K SHIPALT can not be completed by the Planning Yard in time to support the scheduled alteration accomplishment, the SPM and the AIT Manager may elect to choose another activity for development of the detailed design based on competitive bid or best value. The competitive bid process shall include the cognizant Planning Yard. The design development task will authorize development by a qualified design agent of detailed design and associated drawings (including the performance of shipchecks), preparation of applicable Integrated Logistic Support (ILS) documentation, development of acceptance testing documentation and, when required, a preliminary certification test plan. Tasking will address all items in Appendix A. Unless otherwise agreed by the SPM and the AIT Manager, the cognizant SPM shall be the only activity to task Planning Yard efforts.

3.2.6.2 Alteration accomplishment tasking. Tasking for accomplishment of alterations will authorize procurement of required long lead time and incidental material and accomplishment of the applicable SHIPALT. Tasking will address all items in Appendix A.

3.2.7 SHIPALT design development. In accordance with NAVSEA SL720-AA-MAN-010, the class Planning Yards are responsible for the total integrated design of assigned ships and are normally tasked to develop the detailed design of alterations to these ships and associated ship systems. In those instances where the detailed design is not developed by the Planning Yard, the SHIPALT design development shall be coordinated with the Planning Yard. The final design products, including drawings, shall be approved by the cognizant Planning Yard as a minimum (see 3.2.7.4). Drawing approval and SPM authorization shall be obtained prior to the initiation of work.

3.2.7.1 SHIPALT design requirements development. The basic alteration design criteria for a given SHIPALT (including

prerequisite/concurrent SHIPALTs, ORDALTs, MACHALTs, etc.) shall include the following items as applicable:

Magnetic material restrictions
Electromagnetic Compatibility (EMC) requirements
Electromagnetic Interference (EMI) requirements
Radiation Hazard (RADHAZ) requirements
Noise, Shock and Vibration (NSV) requirements
Electrostatic Discharge (ESD) requirements
Electromagnetic Pulse (EMP) requirements
Radar Cross Section (RCS) requirements
Signal Security (SIGSEC) and TEMPEST requirements
Submarine Safety (SUBSAFE) program requirements
Impact on interfaced systems
Battle group interoperability

Alteration design shall address impacts on ship services (electrical power and lighting, heating, ventilation, air conditioning, cooling water, cooling air, deck strength, ship mass properties), stability (weight, moment, etc., storage capacity, etc.) and other critical ship systems such as the Collective Protection System (CPS) and Countermeasures Washdown System (CMWDS). The AIT shall interface with the cognizant Planning Yard to obtain associated ship system impacts.

3.2.7.2 SHIPALT Installation Drawings (SIDs). Individual SIDs shall be prepared in accordance with NAVSEA Technical Specification 9090-600 for each hull authorized in the tasking documentation, unless development of class-applicable SIDs has been authorized by the cognizant SPM. The alteration design that is represented in these drawings will be based on criteria presented in the approved SAR for the SHIPALT, design guidance provided by the Planning Yard, actual configuration determined during a design shipcheck of the applicable ship and from NAVSEA 0902-018-2010, NAVSEA S9AAO-AB-GOS-010/GSO or other general specification as applicable.

3.2.7.2.1 SHIPALT design shipcheck. Whether the design is developed by the Planning Yard or an AIT, a design shipcheck will be conducted on each hull when the AIT Manager and SPM determine the technical risk warrants the cost. Shipchecks shall be conducted at the convenience of the ship being checked following the policies of the cognizant TYCOM on a not-to-interfere basis. For those TYCOMs that hold AIT Scheduling Conferences, shipchecks shall be scheduled at these conferences. Ship availability dates will be coordinated between the activity developing the alteration design and the respective TYCOM or TYCOM designee. Whether a shipcheck is to be accomplished inside or outside of a CNO scheduled availability , the AIT shall provide visit clearance information to the cognizant NSA a minimum of five working days prior to arrival or as established by TYCOM policy.

When an AIT is performing the shipcheck, participation by the cognizant Planning Yard shall be required as specified in the tasking documentation. The AIT, in coordination with the SPM's designated design agent and/or the Planning Yard, shall issue a shipcheck report within ten working days after the design shipcheck is completed. The shipcheck report shall include redline mark-ups, when applicable, to reflect the ship's unique configuration to the Planning Yard to allow coordination and to identify interference's/interaction with other SHIPALT designs which may be under development by the Planning Yard. Unless otherwise agreed to by the SPM and the AIT Manager, the cognizant SPM shall be the only activity to task Planning Yard efforts. (See Appendix E.)

3.2.7.3 Support documentation. The AIT is responsible for ensuring delivery of all documentation and ILS elements required in the Fleet Modernization Program (FMP) Manual (NAVSEA SL720-AA-MAN-010/020, Sections 4, 7, 8 and 9) to be supplied as part of the SHIPALT or Equipment Alterations at the time of alteration accomplishment. This will include, as applicable: Supply support updates, redline mark-ups of Ship's Selected Record (SSR) documentation (Selected Record Drawings [SRDs], Liaison Action Requests (LAR's), Ship's Information Books [SIBs], Ship's Systems Manuals [SSMs], Training Aid Books [TABs], Combat System Technical Operating Manual [CSTOM], Combat System Operation and Sequencing System [CSOSS], Engineering Operation and Sequencing System [EOSS], Engineering Operations Procedure (EOP), etc.) and all required ILS/3M/SCLSIS documentation (technical manuals, PMS, 4790/CK, etc.) whether developed by the AIT or not. The LCM shall provide the cognizant SPM with a copy of ILS Certification for approval in accordance with NAVSEA SL720-AA-MAN-010, section 8-1.4.2, and NAVSEA SL720-AA-MAN-020, Appendix F, exhibit III.

a. Configuration and logistic support updates. The LCM is responsible for insuring that all equipments have proper logistics support completed and available for delivery to the ship at the time of the first alteration installation. This includes interim supply support (both initial outfitting and wholesale stock) until Material Support Date (MSD) has been reached. As part of this responsibility, the LCM will task the AIT Manager to provide accurate and timely configuration and logistics change information: to the ship's CDM (generally the cognizant Planning Yard) in the form of Configuration Overhaul Planning (COP) data; as well as to the Supply System in the form of Program Support Data (PSD) prior to, or concurrent with, alteration accomplishment.

(1) Configuration Overhaul Planning (COP) data is the preferred method of providing a ship with supply support. Unsequenced ASI tapes should never be used.

(2) All other alteration logistics support documentation, including completed OPNAV Forms 4790/CK must be supplied to the ship by the AIT at the time of alteration accomplishment. Electronic transfer of 4790/CK data is the preferred method of transmittal.

b. Ship's Selected Record (SSR) documentation. The AIT will request a list of SSRs that are impacted by the SHIPALT from the Planning Yard prior to the initiation of alteration accomplishment. The actual update of the SSR will be accomplished by the Planning Yard. The AIT Manager will fund the Planning Yard to update the SSR when directed by the SPM and funded by the PARM, PEO or SYSCOM. The AIT is responsible for providing the ship and the Planning Yard with redlined copies of the impacted SSR as part of the Alteration Completion Report (Appendix C). As-installed drawings must be received by the Planning Yard for the SSR updates to be accomplished. Unless otherwise agreed to by the SPM and the AIT Manager, the cognizant SPM shall be the only activity to task Planning Yard efforts.

c. ILS/3M/SCLSIS documentation. The various elements of ILS documentation are discussed in NAVSEA SL720-AA-MAN-010/FMP. The elements of 3M documentation are discussed in OPNAVINST 4790.4. Configuration and logistics management requirements associated with SCLSIS are contained in NAVSEA Technical Specification 9090-700.

d. Certification test documentation. When certification testing is required and the AIT is tasked to perform certification testing, the AIT will issue the certification test results to the Certifying Authority within 30 days of test completion.

3.2.7.4 SHIPALT design approval. AIT-prepared design products shall be approved by the applicable Planning Yard, and SPM authorization granted for the SHIPALT installation prior to the initiation of work on any U.S. Navy ship. Unless otherwise agreed to, the AIT sponsor (SPM, PARM, PEO or SYSCOM) will provide funding for the Planning Yard review of AIT-developed design products, including drawings. Unless otherwise agreed to by the SPM and the AIT Manager, the cognizant SPM shall be the only activity to task Planning Yard efforts. Once approved, only the Planning Yard, the SPM or the SPM's designated representative can approve deviations and waivers to the design. Note NSA Chief Engineers designated in NAVSEAINST 5400.95A may approve minor deviations and waivers to the design. AITs without Planning Yard-approved drawings shall not attempt to accomplish alterations to ships without documented approval from the cognizant SPM. AITs without Planning Yard-approved designs or documented approval from the cognizant SPM shall be denied access to ships.

a. SHIPALT design impacting the propulsion plant on nuclear powered ships. Alteration designs which impact the portions of propulsion plant or designated spaces of nuclear powered ships which are not under the cognizance of the Deputy Commander for Nuclear Propulsion (NAVSEA 08) shall be approved by the cognizant SPM as required by NAVSEAINST C9210.4. All design products which indicate such an impact, whether prepared by the Planning Yard or the AIT, shall be approved by the cognizant SPM as stated above.

b. SHIPALT Drawing approval. Unless otherwise specified in the tasking documentation, AIT-developed design drawings for the first planned accomplishment of an alteration on a ship class shall be reviewed and approved by the applicable Planning Yard. When tasking indicates that the drawing review is being coordinated by the SPM, the Planning Yard, the NAVSEA Engineering Directorate and the system/equipment LCM will participate in the review. The drawings will be reviewed for: technical accuracy, design adequacy, compliance with applicable design technical requirements (SIGSEC, TEMPEST, EMC, EMI, RADHAZ, NSV, ESD, EMP, RCS, SUBSAFE, etc.) and applicable technical specifications (including new construction and General Overhaul) and format (in accordance with NAVSEA Technical Specification 9090-600) and clarity.

AIT-developed drawings will be submitted to the Planning Yard with a transmittal letter (copy to the cognizant SPM) that includes at least the following: scheduled installation date for the specific hull, two points of contact with corresponding phone numbers and e-mail addresses and an explanation of that submittal (i.e., initial review, comment incorporation validation, etc.)

Except for very large or complex alterations, **the review cycle will be sixty (60) working days or less** after Planning Yard receipt of drawings and appropriate funding. If the review can not be completed in sixty working days, the approving activity will coordinate the completion date with the AIT Manager. The requirement to review alteration designs for follow-on ships will be at the discretion of the applicable Planning Yard if not otherwise required by the tasking documentation. Generally, a Planning Yard review of follow-on ship alteration designs will be required due to significant design differences among ship hulls. The interpretation of the degree of change required in order to effect additional design review will be as defined by the cognizant SPM unless specifically delegated to the Planning Yard. The Planning Yard shall, subsequent to the review of the first ship design, advise the AIT Manager if a review of follow-on ship design is considered necessary, and under what circumstances. AITs without Planning Yard approved drawings may be denied access to ships.

(1) Drawing reviews for SHIPALTS impacting electromagnetic compatibility. Alterations to a ship's topside configuration can impact the electromagnetic wave propagation as well as the reception of signals by the ships electromagnetic sensors (i.e. radar, navigation equipment, magnetic field detectors and communications and other receivers). Additionally, below deck electrical and electronic equipment may emit or react to harmful electromagnetic energy. In accordance with NAVSEAINST 2450.2, the NAVSEA Electromagnetic Effects Office (NAVSEA 53H3) shall participate in the above drawing approval reviews for alterations which effect ship topside configurations or which add electrical or electronic equipment. These reviews are held to prevent AIT installations from creating topside interferences.

(2) Drawing reviews for SHIPALTS impacting Command and Control Spaces. Alterations to a ship's command and control spaces can have a significant impact on physical arrangements and critical system integration characteristics of the information and data control capability realized through software, networks, etc. The appropriate Systems Command Combat System Design and Engineering Group shall participate in the above drawing approval reviews for alterations which effect ship Command and Control spaces.

c. Electronic equipment test procedure/record approvals. Equipment-specific test procedures and test record forms for electronic equipment may be required to be approved for work on critical systems or for high visibility programs. The approving activity in these cases shall be the system/equipment LCM (usually the AIT Manager). When an alteration impacts interfaces with other systems or equipment via various modes (fiber or copper Local Area Networks [LANs], switchboards, etc.) the ISEAs for each impacted system or equipment shall participate in the test procedure approval process.

d. Technical liaison services. The Liaison Action Record (LAR) is the implementation tool for the formal technical liaison system between the AIT and the applicable Planning Yard. The system will facilitate resolution of questions and change requests regarding drawings and technical documentation, and the transmittal of requests for deviations and waivers. For each required deviation from an approved design, the AIT shall prepare a LAR in accordance with NAVSEA Technical Specification 9090-100 documenting the request for the design change. All LARs will be forwarded to the Planning Yard for resolution. Copies of all LARs and Planning Yard responses will be attached to redline drawing package submitted to the Planning Yard within 15 days of installation completion. All LARs which impact design shall be incorporated in SIDs by the AIT and approved by the Planning Yard as part of the final drawing update. The submittal and review

process shall take no longer than 60 days. The LAR may also be used to document Planning Yard review and approval of AIT-prepared drawings, as tasked by the cognizant SPM.

3.3 Pre-installation Requirements, TEMPALTs (Surface Ships and Service Craft).

3.3.1 Initial determination of alteration accomplishment by AIT. Except for major TEMPALTs which require significant industrial support, accomplishment of these alterations is usually considered to be within the capability of AITs. In general an AIT should be used when the technical and/or specific nature of the work requires an AIT, a substantial government financial savings can be obtained, flexibility of an AIT is required due to short timeframe installs, or substantial "lessons learned" can be obtained from re-using the same team.

3.3.2 TEMPALT development. TEMPALTs do not require the development of a formal document like the SAR which is required for SHIPALTs. Instead, a tentative Plan of Actions and Milestones (POA&M) is normally developed which outlines requirements for design shipcheck, design development, drawing approval, assembly fabrication, logistics support while installed, alteration accomplishment and alteration removal. The AIT shall coordinate the POA&M with the cognizant TYCOM, NSA and SPM as soon as the plan is developed and anytime it is revised. TEMPALTS that affect Battle Group interoperability will be coordinated with the cognizant CINC prior to scheduling for installation.

3.3.3 Planning. After the tentative POA&M is issued, detailed planning must be coordinated by the AIT with the cognizant TYCOM and NSA to establish which ship is to receive the TEMPALT (if not previously identified in the tasking documentation) and planned dates the ship will be available for design shipcheck and alteration accomplishment. If the dates are coincidental to a scheduled CNO availability, AIT coordination with the cognizant NSA and the CNO availability planning activity is also required. In all cases, the AIT must provide the cognizant NSA with security clearance data in order to be granted access to the ship.

3.3.4 Budgeting. TEMPALT accomplishment is usually budgeted and funded as part of the applicable project or program for RDT&E alterations and by the cognizant FLTCINC, TYCOM or CNO Resource Sponsor for mission support alterations. Budgeting for TEMPALTs shall include sufficient funding to remove the alteration and restore the ship to its original configuration. TEMPALTs are not funded as part of the FMP.

3.3.5 Scheduling. Scheduling for TEMPALTs is performed in the same manner as for SHIPALTs (see paragraph 3.2.5). Development

of a mini-COSAL is not required for TEMPALTs which are planned to be removed within 90 days of accomplishment.

3.3.6 Tasking. Tasking of AITs for accomplishment of TEMPALTs generally includes the total effort: design development, alteration accomplishment, alteration removal and ship restoration. Tasking will address all items in Appendix A.

3.3.7 TEMPALT design development. Alteration design development for TEMPALTs is the same as for SHIPALTs (see paragraph 3.2.7), except for TEMPALT support documentation requirements for TEMPALTs which are to be removed within 90 days of the accomplishment of the alteration .

3.3.7.1 Technical Data Package (TDP). For all TEMPALTs, regardless of intended duration, a TDP shall be prepared which includes a description of the alteration, ship impact data, stress calculations, weight and moment calculations and alteration drawings.

3.3.7.2 Design drawings. Form and format of design drawings shall be as directed by the cognizant SPM.

3.3.7.3 Design approval. TEMPALT designs, including design drawings, are required to be reviewed and approved for safety and technical adequacy and impact on ship stability, operational characteristics, damage control, ship structure, ship services, ship interfaces and habitability. TEMPALTs shall be reviewed and approved as directed by the cognizant SPM. The cognizant CINC will approve TEMPALTS affecting BG interoperability. AITs without documented SPM approval of alteration designs should not attempt alteration accomplishment and may be denied access to ships.

3.3.7.4 Support documentation. TEMPALTs which are planned to be removed within 90 days of accomplishment shall be supported to the extent necessary to support operation and maintenance of the equipment for the duration of the alteration. For TEMPALTs which are intended to remain installed for more than 90 days, the same alteration support requirements as for SHIPALTs apply (see paragraph 3.2.7.3).

3.4 Installation Preparation Requirements.

3.4.1 Installation planning and preparation. The AIT shall not initiate preparation for alteration accomplishment until specifically tasked and funded by an AIT Manager. The AIT Manager will coordinate with and obtain approval of the cognizant SPM, the LCM (if not the AIT Manager) and applicable TYCOM(s) prior to tasking an AIT for accomplishment of a SHIPALT, Equipment ALT or TEMPALT.

3.4.2 Pre-installation coordination requirements. All alterations which are scheduled to be accomplished by an AIT during a scheduled CNO availability will be coordinated with and approved in advance by the cognizant SPM and the NSA which is designated to supervise the CNO availability. These alterations must be included in the NAVSEA Availability Advance Planning Letter and subsequent Availability Authorization Letter for that CNO availability. Liaison between the AIT, the CNO availability planning activity, and cognizant NSA shall be initiated no later than 180 days prior to the start of the scheduled installation. Specifically, the AIT will notify the cognizant NSA who will provide the Master Ship Repair Contractor, when applicable, of all significant installation preparation requirements include material, team formulation and pre-installation coordination by the AIT.

a. Planned accomplishment during a CNO availability. NSA notification (at least 180 days prior to the start of the availability) shall include:

(1) AIT activity and alteration(s) to be accomplished.

(2) Type of MSR industrial support services (welding, rigging, hazardous material handling/disposal, etc.) that will be required. See SUPSHIP Standard Work Template (SWT) 980-01, “Alteration Installation Team Support Service, Provide”. A sample checklist is provided as Appendix B.

(3) Quantity (mandays or manhours) of each service that will be required.

(4) Listing of systems, locations and proposed sequence of events in which the AIT work will be accomplished, including any lay-down area requirements.

(5) Verification of compliance with insurance and Quality Assurance system requirements.

(6) Points of Contact for the AIT.

(7) Alteration installation production and testing schedule (including ship work approximate start date). This schedule should be provided via electronic means whenever possible to facilitate its timely integration into the overall CNO availability schedule and rapid NSA review.

(8) Expected duration of the AIT ship work (calendar days).

(9) Installation production test schedules and Bill of Materials (desired in electronic format). These schedules will specify expected start dates and duration of all AIT

shipboard work and testing, along with time frames where there could be a significant impact on ship's operations.

b. Planned accomplishment outside of a CNO scheduled availability. When the installation is not to be accomplished during a CNO-scheduled availability , the AIT shall provide scheduling information to the TYCOM and cognizant NSA. The AIT will provide paragraph 3.4.2.a information to the cognizant NSA no later than 30 days before the start of the availability, or as directed by applicable Joint Fleet instructions/JFMM.

3.4.3 Special requirements. The AIT Manager is responsible for providing advance notification of alteration accomplishment requirements/impacts and making arrangements (including funding) for any required support services not being provided by the AIT. These arrangements shall be made with the appropriate activity, including NSA, prior to the arrival of the AIT for accomplishment of the alteration, preferably 180 days in advance, and at least 135 days in advance. Possible requirements/ impacts will be identified in the initial scheduling of the alteration for accomplishment. Identified requirements for individual ships will be discussed in detail at the ship design shipcheck out-brief and will be verified at the alteration accomplishment in-brief. Notification of these requirements may include, but are not limited to:

a. Material delivery and stowage requirements (number of boxes/pallets, special handling [such as ESD, SUBSAFE, magnetic protection, etc.], special stowage, etc.)

b. Crane service requirements (capacity, onload, offload, high reach, etc.)

c. Rigger service requirements.

d. Impacted areas and spaces, including required access to secure spaces.

e. Inspection requirements (gas free, SIGSEC, TEMPEST, weight tests, etc.)

f. Scope of Pre-Installation Equipment Check-Out (PICO) requirements for ship's force validation of existing equipment/-system operating conditions prior to accomplishment of the alteration (specific equipments, testing, etc.)

g. Scope of hot work requirements (cutting, welding, brazing, etc.)

h. Fire watches (number of welders working, number and length of shifts, etc.)

i. Access cut requirements.

j. Work control review of specific equipment, systems, circuits, components, piping, or valves which will require isolation, deactivation or removal to accomplish planned work and any associated tag-out processing requirements.

k. Planned handling, use and disposal of identified hazardous materials (i.e., fluorocarbons, paint, welding rods, partially used material, etc.)

l. Specific ventilation/environmental requirements (special air flow/cooling/heating requirements, protective shelters to be installed, etc.)

m. Ship systems service requirements (power, low or high pressure air, etc.) which may be required to support the accomplishment of the alteration or calibration or certification of the equipment.

n. Weapons handling requirements.

o. Post installation testing support requirements.

p. System certification (SIGSEC, TEMPEST, EMC/EMI/RADHAZ, SUBSAFE, etc.) which could be required/affected by accomplishment of the alteration.

q. Non-Destructive Testing (NDT) requirements.

r. Man-aloft requirements.

s. Diver and cofferdam requirements.

t. NSA turned-in equipment/material disposal requirements.

u. Administration support requirements (dedicated telephone service, desk space, etc.)

v. Scaffolding and staging requirements.

w. Entry of OPNAV form 4790/2K for ALT being accomplished.

Whether these requirements are to be provided by the AIT or arrangements are made with the ship, the NSA or another activity for meeting these requirements, they shall remain the responsibility of the AIT. The AIT will provide funding for any required support services to the cognizant activity no later than 30 days prior to the expected start date that the services will be needed.

3.4.3.1 NSA notification of special requirements. When alterations are planned to be accomplished during scheduled ship availabilities, the applicable NSA and the CNO availability

planning activity (normally the Ship Availability Planning and Engineering Center (SHAPEC)) shall be notified of any special requirements which are planned for accomplishment of the alteration as soon as the requirements are identified. Funding for these special requirements shall also be identified. Excepting emergent requirements, the notification shall be provided not later than 180 days prior to the start of the availability to support the contract solicitation process. Funding for support services during a CNO availability shall be provided to the NSA 90 days prior to the start of the availability. To facilitate this process, Appendix B provides a recommended format for the AIT to provide this information to the NSA.

3.4.4 Design shipcheck. In preparation for the design shipcheck (see Appendix E), the AIT shall establish contact with the applicable NSA, or TYCOM to determine acceptable design shipcheck dates. For TYCOMs that hold AIT Scheduling Conferences, the AIT or the AIT Manager should present the proposed shipcheck schedule at the next AIT Scheduling Conference to allow notification of applicable ships and cognizant NSA of the intent to accomplish the alteration. Whether a shipcheck is to be accomplished in or out of a scheduled CNO availability, the AIT shall provide visit clearance information to the cognizant NSA a minimum of five working days or as established by TYCOM policy prior to arrival.

3.4.4.1 Security clearances. Where access is required to secure areas or equipment, the individual design shipcheck team members requiring such access are required to have the proper level of clearance for access without escort. Security clearance information will be provided a minimum of 5 working days prior to arrival or as established by TYCOM policy. The AIT will provide clearance information for design shipcheck team members to the ship, the cognizant TYCOM, cognizant NSA and other appropriate Naval activities.

3.4.4.2 Design shipcheck in-brief. A design shipcheck in-brief shall be conducted upon arrival on board for appropriate members of ship's force and cognizant NSA personnel and, if applicable, the Planning Yard On-Site Representative. The briefing will explain the purpose and extent of the planned alteration(s) and provide an outline of data to be gathered, spaces requiring access, etc.

3.4.4.3 Design shipcheck out-brief. After completion of the design shipcheck, the team shall conduct a design shipcheck out-brief. This briefing will discuss the extent of work required to accomplish the alteration on that ship and the extent of any support that may be required to be provided by the ship. This would include requirements for Pre-Installation Equipment Check-Outs (PICOs), weapons handling, etc.

3.4.5 Incidental material. The AIT shall be responsible for supplying all material other than HCPM, including incidental/expendable (shop stores) material (i.e., tape, solder, welding rods, paint, fasteners, deck covering, insulation, etc.), required to accomplish the alteration.

3.4.6 Material requirements. All material required to be installed/provided as part of an alteration shall be assembled by the AIT for each tasked hull. This material includes all material (HCPM and AIT-procured) required by the installation drawings and all required logistic support items (special tools/test equipment, interim spares, Allowance Parts Lists [APLs], maintenance plans, technical manuals, test procedures, PMS, MAMs, OSI, etc.) required to be turned over to the ship.

a. When ordering AIT-procured material (other than shop stores-type material) from the Federal Supply System, the AIT should first check with the cognizant material item manager to determine whether or not the supply activity has pre-staged or reserved material for the applicable alteration.

b. For ease of accomplishment and reduced on-board effort, prefabrication of material (foundations, cable/harness assemblies, etc.) should be utilized to the maximum extent possible.

c. All SUBSAFE material should be provided with a full set of certification documentation to expedite alteration accomplishment.

d. All SUBSAFE or Level I material which is to be temporarily removed as part of a submarine ALT shall be controlled, stored and protected while removed in accordance with NAVSEA 0924-062-0010 in order to maintain the SUBSAFE or Level I certification of the material.

3.4.7 AIT requirements. The make-up and management of the AIT is the responsibility of the AIT Manager tasked to accomplish the alteration.

3.4.7.1 AIT formulation. The make-up of the AIT shall be as determined by the AIT Manager based on the skill level requirements of the work to be accomplished and the number of shifts the AIT is planned to work. Each AIT will be outfitted with all required hand tools, Personal Protection Equipment (PPE), General Purpose Electronic Test Equipment, special purpose electronic test equipment, installation and check-out spares, special alignment equipment, etc., required to accomplish the alteration. For those skills which require specific training, qualification and/or certification (welding, electrical connector assembly, SUBSAFE, SIGSEC, TEMPEST, PCMS installation, etc.), AIT

members performing these functions shall be fully qualified/certified.

3.4.7.2 AIT On-site Installation Coordinator. Each AIT shall have an AIT On-site Installation Coordinator (military or government employee) designated by, and acting with the authority of the AIT Manager. The AIT On-site Installation Coordinator will have general responsibility for the conduct of the installation. He/she will be the point-of-contact with the ship and the cognizant NSA. AIT On-site Installation Coordinators shall be knowledgeable of and responsible for AIT adherence to all invoked requirements including safety, quality and, when applicable, the SUPSHIP Operations Manual (SOM), Appendix 2-E. For multiple shift operations, AIT On-site Installation Coordinator coverage will be provided for each shift. AITs that do not have an assigned AIT On-site Installation Coordinator (or documented approval from the cognizant SPM that an AIT On-site Installation Coordinator is not required) shall not attempt to accomplish alterations to ships and will be denied access to ships.

3.4.7.3 Participation of other activities. Any participation of a system/equipment ISEA or other activity which is required for accomplishment of required conjunctive or associated ORDALTs, MACHALTs, Field Changes, etc., or for testing or certification of equipment or systems associated with the accomplishment of the tasked alteration(s) shall be coordinated with the AIT.

3.4.7.4 Transportation and billeting. Transport of AIT personnel, tools, material and support equipment to and from the installation site and all billet arrangements shall be the responsibility of the AIT.

3.4.7.5 Security clearances. Where access is required to secure areas or equipment, the individual AIT members requiring such access will have the proper level of clearance for access without escort. A minimum of five working days prior to arrival or as established by TYCOM policy, the AIT shall provide clearance information for AIT members to the ship, the TYCOM, the cognizant NSA, appropriate Naval activities. In situations requiring a quick response, security clearance information will be provided as far in advance as possible by the fastest means practicable. For alterations being accomplished during CNO availabilities, the security requirements of the industrial or naval activity shall also be complied with in addition to those required for access to the ship.

3.4.7.6 Personal Protective Equipment (PPE). Each AIT member is responsible for possessing and properly utilizing PPE while on board a ship and while transiting an industrial area to or from a ship. For alterations being accomplished at an industrial activity, PPE shall meet the requirements of that facility. The

AIT On-site Installation Coordinator shall be responsible for insuring compliance with this requirement by all AIT members. AIT members who do not possess or utilize proper PPE while on board ship or while transiting an industrial area will be required to leave the facility/ship.

a. Footwear. Shoes or boots to be worn on ships should have hard soles with leather or equivalent tops. Water and oil resistant footwear with non-slip soles is recommended. When working on ships on which industrial work is being performed or when transiting through an industrial area to or from the ship, steel toed shoes or boots are required.

b. Head protection. Hardhats meeting OSHA requirements are required to be worn by each individual transiting through an industrial area (shipyard, etc.) or on any ship that has industrial work being performed. The hardhat should have the individual's name and activity printed on it.

c. Hearing protection. Hearing protection (ear plugs, etc.) meeting OSHA requirements is required to be used by each individual entering a high noise area. Hearing protection is required to be carried on the person of each individual transiting through an industrial area (shipyard, etc.) or on any ship that has industrial work being performed.

d. Eye protection. Eye protection (shatter-proof glasses, goggles, etc.) meeting OSHA requirements is required to be used by each individual entering an industrial area (shipyard, etc.) or on any ship that has industrial work being performed.

e. Emergency lighting. An operable flashlight or chemical light stick shall be carried by each AIT member while on any ship that has industrial work being performed.

3.5 Installation Requirements. The performance and completion of shipwork is solely the responsibility of the AIT. The alteration is to be accomplished at the convenience of the ship in accordance with the AIT Task Data (Appendix A) and Alteration Completion Report (Appendix C) and, to the maximum extent possible, on a not-to-interfere basis. Ship's Force will monitor the quality of AIT performance in accordance with CINCLANTFLT/CINCPACFLTINST 4790.3, Volume II, Chapter 3, paragraph 3.6.1.4. All work practices shall conform to the latest version of NAVSEA Standard Items. The AIT On-site Installation Coordinator (paragraph 3.4.7.2 above) and cognizant NSA will assist ship's force in monitoring the quality of AIT performance. The AIT shall fully coordinate all AIT actions with the cognizant NSA. Ship's Force is ultimately responsible for all activities that happen aboard the ship, and provides oversight to all work onboard the ship. This oversight supercedes that of the cognizant NSA or RMMCO. Ship's Force has the authority to

inspect or stop work at any time. AITs are responsible for keeping Ship's Force appraised of the status of their work aboard the ship and any impact it may have on ship's operations or safety. The general procedure for AIT accomplishment of an alteration is as follows:

3.5.1 AIT Check-in and Pre-brief. Each AIT shall check-in with the cognizant NSA and pre-brief the installation prior to reporting to the ship. For availabilities that are conducted within an area controlled by a specific NSA (i.e. availabilities conducted within the physical confines of a shipyard), the AIT shall check in with the cognizant NSA prior to performing work. When work is to be performed on a ship that is outside of an area controlled by an NSA, the AIT shall check in with the activity designated by TYCOM. During this pre-brief, the AIT shall provide a detailed installation plan; and review ILS documentation, special support requirements, ILS deficiencies, System Operation Verification Test (SOVT) requirements (as applicable). During this check-in, the NSA will ensure that the alteration has been approved for installation and that the schedule reflects the AIT's plan. AITs not meeting any of the above requirements will not be allowed to proceed to the ship until satisfactory resolution has been accomplished.

3.5.2 In-brief. An in-brief shall be scheduled and coordinated by the AIT Manager with the cognizant TYCOM, Squadron, NSA and ship. The in-brief shall be conducted upon arrival on board the ship and prior to the initiation of alteration accomplishment. The in-brief shall be conducted as outlined in Appendix F. Whenever possible, for alterations which impact several systems or spaces or will require more than a week to complete, the in-brief shall be held for key personnel prior to the start of alteration accomplishment, coordinated by the TYCOM, NSA or Squadron, as appropriate. Ship's personnel present should include, as applicable:

Commanding Officer	Executive Officer
Operations Officer	Combat Systems Maint Officer
Systems Test Officer (STO)	Combat Systems Officer
Combat Decision Center Officer	Communications Officer
Intelligence Officer	Supply Officer
Maintenance Manager/3-M Officer	Electrical Officer

Associated technical and operational personnel, (e.g. ET, FC, RM, OS, IC, EM ratings, etc., as applicable)

If the alteration is to be accomplished during a scheduled CNO availability, the NSA, the Planning Yard On-Site Representatives (Program Representative and CDM) and the lead ship availability manager from the industrial activity will also be invited to attend. The AIT will record attendance and minutes of the in-brief and distribute to all attendees. AITs that have not held

an in-brief shall not attempt to accomplish alteration and may be denied access to ship.

3.5.3 Shipwork outside of a CNO scheduled availability. If the alteration is to be accomplished outside of a scheduled ship CNO availability, the AIT On-Site Installation Coordinator shall check in with the cognizant NSA or the TYCOM designated point of contact, and then report to the previously established ship's point-of-contact, the applicable Department Head or Division Officer or the Commanding Officer prior to the arrival of the rest of the AIT and the installation material. Work shall be conducted in accordance with the schedule presented at the in-brief. It will be the responsibility of the AIT to perform required shipwork around restrictions that may be imposed by the ship due to emergent ship’s evolutions. Any changes to the work schedule provided to the ship at the in-brief shall be reported to the ship and the cognizant NSA or the TYCOM designated point of contact, as soon as they are identified. The cognizant NSA or the TYCOM designated point of contact, shall be informed of the progress/completion of ship work.

3.5.4 Shipwork during a CNO scheduled availability. If the alteration is to be accomplished during a scheduled CNO availability, the AIT On-site Installation Coordinator shall report to the cognizant NSA prior to the arrival of the rest of the AIT. The previously established ship's point-of-contact will also be contacted. As in the case of work accomplished outside of an availability, the AIT shall be responsible for scheduling work around events occurring as part of the availability. Any changes to the work schedule provided to the NSA and the ship at the in-brief shall be reported to the NSA and the ship as soon as they are identified. The activity accomplishing the availability shall have priority in regard to space access and services (power, cranes, welding, etc.) in support of the availability schedule.

3.5.5 Pre-Installation Equipment Checkout (PICO). For alterations which require modifications to existing systems, the AIT will witness Ship's Force complete a PICO of all applicable systems and equipment prior to modification/relocation to validate the operational status and characteristics of the systems and equipment. Ship’s Force testing shall be PMS-based and currently implemented on the ship. Any additional testing shall be the responsibility of the AIT. The PICO report will outline SAT or UNSAT performance and will include known discrepancies and designate the activity responsible for correction. The AIT will provide a copy of the PICO report to the appropriate ship, NSA and TYCOM representatives for record purposes within three (3) working days of PICO completion.

3.5.6 Installations Impacting the Propulsion Plant on Nuclear Powered Ships. Alteration installations which impact portions of

the propulsion plant or designated spaces of nuclear powered ships which are not under the cognizance of the Deputy Commander for Nuclear Propulsion (NAVSEA 08) shall be accomplished as required by NAVSEAINST C9210.4. This instruction, along with its two enclosures (1. List of Propulsion Plan Systems. 2. Areas of Ships Within Which Arrangement Changes Require Prior NAVSEA Approval) provides requirements for implementing changes, repair and maintenance to nuclear powered ships. It defines criteria for work within shipboard nuclear spaces, or in any part of the propulsion plant or the ship that could affect reactor safety or personnel radiation exposure. It also identifies the affected shipboard spaces, areas and systems. When an installation interfaces with one or more of these, the procedural requirements of the instruction, including its attachments, are mandatory. Caution must be exercised as such interfaces are not always readily apparent, and a careful review of this instruction is necessary to determine possible applicability to a work assignment.

3.5.7 AIT On-site Installation Coordinator. Once work has been initiated, the designated AIT On-site Installation Coordinator (paragraph 3.4.7.2) will be responsible for the conduct of the AIT and the resolution of any problems that may arise. When work is to be accomplished during scheduled CNO availabilities, the AIT On-site Installation Coordinator shall attend NSA availability production and coordination meetings. The AIT On-Site Installation Coordinator will provide installation progress and status of accomplishment during production and coordination meetings. NSA’s or Ship’s Force may report AIT deficiencies to the coordinator verbally or in writing, depending on the severity of the deficiency. AIT On-site Installation Coordinators shall be responsible for correction/resolution of such deficiencies.

3.5.8 Workmanship. Workmanship and work practices shall meet the requirements of all contract specifications including applicable NAVSEA Standard Items. The AIT documented Quality System will include or make reference to procedures that will ensure product conformance. AIT Managers/NSA must ensure AITs have an acceptable Quality System (see paragraph 4.2) prior to commencing installations. AITs without an acceptable Quality System may be denied access to the ship. When tasked, Planning Yards shall participate in AIT installations and production milestones (critical path) to insure conformance to ship specifications and that the installation is accomplished in accordance with design. Planning Yard participation will insure cradle-to-grave conformance to ship standards throughout the entire AIT installation process.

3.5.9 Deactivations. During accomplishment of the alteration, various circuits, pipe runs, equipment, etc., may have to be temporarily deactivated or placed in a reduced operating status. The Commanding Officer's designated representative shall be

notified in writing of equipment and systems that require isolation to accomplish the alteration. This notification shall be provided prior to initiation of ship work so that tag-outs can be accomplished as required by ship's instructions. Notification shall be 48 hours prior to required deactivation to ensure proper coordination with other on-going work. AIT members shall not deactivate or tag-out equipment. The AIT On-site Installation Coordinator will request ship's force or the NSA (for coordination) to deactivate applicable equipment and install tags when tag-out of a system, piping or circuit is required. Deactivated SUBSAFE or Level I material removed as part of a submarine TEMPALT which is intended to be reinstalled when the TEMPALT is removed shall be controlled and stored in accordance with paragraph 3.4.6. NAVSEA Standard Item 009-24 (Isolation, Blanking and Tagging Requirements, Accomplish) provides additional guidance in this area.

3.5.10 Interference removal. Installation of approved alterations often involves removal of interferences to gain access for alteration accomplishment. Removal, reinstallation and testing of temporary interferences shall be in accordance with the requirements set forth in NAVSEA Standard Item 009-23. Systems and equipment requiring permanent modification or relocation to accommodate the alteration are not to be considered interferences but will be considered part of the alteration design.

3.5.11 Housekeeping. The AIT shall perform general housekeeping, including the proper disposal of any hazardous waste, industrial waste or excess hazardous material, in all impacted areas as an on-going part of the alteration accomplishment. At the completion of each shift, each work site shall be broom-cleaned of all debris and trash, including any hazardous waste, industrial waste or excess hazardous material. All material will be properly disposed of. Additionally, the AIT will be responsible for protecting equipment from contamination during the alteration installation process. NAVSEA Standard Item 009-06 (Protection During Contamination-Producing Operations and Maintaining Cleanliness; Accomplish) provides additional housekeeping guidance.

3.5.12 Testing. The AIT will test the alteration and all equipment directly impacted by accomplishment of the alteration in accordance with the approved drawings, test procedures and applicable ship specifications. This includes inspection and testing of all systems impacted by the alteration, including systems which have equipment or machinery removed and reinstalled as interferences. Systems shall be subjected to appropriate testing to demonstrate operational acceptability including SIGSEC, TEMPEST, EMC, SUBSAFE, CPS, etc., as applicable. Such tests will be conducted under conditions simulating normal service conditions as closely as possible. An individual

alteration will not be considered complete until a System Operation Verification Test (SOVT) and/or appropriate systems integration testing are successfully accomplished. The AIT On-site Installation Coordinator shall maintain completed test reports during accomplishment of the alteration. A complete set of the test reports shall be provided to the ship at the completion of the alteration. Testing requirements shall be coordinated with the NSA and the industrial activity (generally beginning at the A-60 time point) for inclusion into an availability Integrated Test Plan/Total Ship Test Plan when shipwork is to be accomplished during a scheduled CNO availability. This will insure that testing requirements do not conflict with other on-going shipwork or present possible personnel safety hazards. The NSA shall be notified prior to all testing events and completed test reports shall be available to the NSA upon request.

3.5.13 Training and ILS. Upon completion of the alteration, any required on-the-job training of assigned members of the ship's crew shall be conducted by the AIT. Training will include both operation and maintenance of all new and modified equipment. All ILS items (including any required interim supported on-board spares that can not be procured by requisition), documentation, and a complete set of redlined installation drawings shall be turned over to the ILO if the ship is in a CNO availability, or directly to the ship if the ship is not in a CNO availability, in accordance with the check off list of Appendix C. For applicable ships, this data, including the Completion Report, may be delivered directly to the local Planning Yard Homeport Representative. Combat System Technical Operations Manual (CSTOM) and Combat System Operational Sequencing System (CSOSS) documentation shall be updated if applicable. Combat system software/firmware and related documentation will be turned over to the designated officer. This includes unclassified and classified programs. Unique On-Board Repair Parts (OBRPs) or interim spares (as applicable), publications (two copies), special test equipment and ship's red-lined drawings, marked to indicate all variances, will be turned over to the appropriate ship's representative. This will allow proper recording of the receipt of the material in the ship's SNAP or other custody files. A completed OPNAV Form 4790/CK, with the Job Control Number (JCN) assigned will be turned over to the Ship's 3-M Coordinator. If planning data was not provided to the ship's CDM prior to the installation, AITs will provide SNAP configured ships with appropriately formatted media through the applicable TYCOM for updating the data base to properly reflect any configuration changes/new repair parts/support requirements that may arise from the alteration. For ships which do not have SNAP installed, appropriately annotated, hard copy Allowance Parts List (APL) pages will be supplied through the TYCOM. This updated information, validated by the AIT, together with ship's representatives, will act as both basis and authority for

generating configuration change information in accordance with OPNAVINST 4790.4 and generating requisitions for supply support deficiencies in accordance with NAVSEA T9066-AA-MAN-010.

3.5.14 Final housekeeping. After completion of all shipwork, the AIT will conduct final housekeeping in all areas involved in the alteration accomplishment. Excepting cryptographic equipment, equipment that is removed as part of the alteration and is to be turned-in for accounting purposes shall be the responsibility of the AIT. Turn-in of cryptographic equipment will be the responsibility of the ship.

3.6 Installation Follow-up.

3.6.1 Out-briefing. After completion of all ship work, the AIT will conduct an out-briefing and will obtain the signature(s) of the ship's designated representative(s) on the Alteration Completion Report (see Appendix C) cover sheet. The NSA and, when applicable, the Local Planning Yard On-Site Representatives (Program Representative and CDM) shall be invited to attend all out-briefs. For alterations accomplished outside of an availability, a joint ship/AIT alteration completion message shall be issued within 72 hours of operational certification. The message will indicate any system interface not demonstrated during operational certification and include all known discrepancies assigned to the responsible activity (i.e., the ship, the AIT, TYCOM, etc.). The alteration completion message is in addition to the Alteration Completion Report required in paragraph 3.7.3 below. If the alteration is accomplished during a scheduled CNO availability, the NSA shall be notified by the AIT of their departure from the alteration site, all outstanding discrepancies and the corrective POA&M indicated in the completion report. All special badges, passes, check-out forms, dosimeters, etc. will be turned-in, as required, in accordance with cognizant NSA requirements.

3.6.2 Drawings developed by the Planning Yard. For alterations where the design drawings are prepared by the Planning Yard, the AIT shall provide a red-line mark-up of the drawings to the ship and the Planning Yard indicating any/all deviations/variances authorized by the Planning Yard to support the actual alteration accomplishment. The redlined drawings shall be forwarded within 15 working days of installation completion. Copies of LARs which authorized the deviations or waivers shall also be forwarded to the Planning Yard. The AIT Manager shall provide funding necessary for the Planning Yard update of design drawings. Unless otherwise agreed to by the SPM and the AIT Manager, the cognizant SPM shall be the only activity to task Planning Yard efforts.

3.6.3 Drawings developed by the AIT. For alterations where design drawings are prepared by the AIT and reviewed and approved

by the Planning Yard, the AIT shall ensure that the approved design drawings are revised to indicate the actual "as installed" configuration on the ship. The ship will receive a redlined copy of the drawings at the time of alteration completion and, when revised, **electronic media copies of the as-built drawings shall be forwarded to the applicable ship and the Planning Yard.** Copies of any LARs which authorized deviations or waivers from approved designs shall also be forwarded to the Planning Yard.

3.6.4 Ship's Selected Record (SSR) Documentation. The AIT Manager shall provide funding necessary for the Planning Yard update of SSR documentation as directed by the SPM. The actual update of SSR documentation will be accomplished by the Planning Yard as part of the normal SSR update process associated with scheduled ship availabilities. SSR updates for AIT installations accomplished outside of scheduled ship availabilities may be accomplished on an annual basis but shall be accomplished before expiration of AIT funding and if possible be aligned with the normal SSR update process associated with the next scheduled availability of the respective ship. As installed drawings must be received by the planning yard for SSR updates to be accomplished.

3.7 Reporting Requirements. There are a minimum of three reports required from the AIT for each task; a Task Status Report, a Naval Message Completion Report and an Alteration Completion Report. In the event that the Naval Message Completion Report and Alteration Completion Report list installation deficiencies (in Attachment (1) of the report as shown in Appendix C), the ship receiving the installation will send a naval message Final Completion Report when all deficiencies are corrected and the ship accepts the installation as complete. Suggested formats for these naval message reports and the Alteration Completion Report are provided in Appendix C.

3.7.1 Task Status Report. A Task Status Report (monthly or quarterly, as required by the tasking activity) shall be submitted to the AIT Manager with copies to the SPM, applicable TYCOMs, applicable NSA, the LCM and the cognizant Planning Yard. Form and format of Task Status Reports shall be as specified by the tasking activity. For AITs with more than one (1) alteration task from the same Manager, the reports may be combined in the same document, but the data shall be segregated by alteration. Whether tasked by the LCM, the cognizant SPM or another activity, copies of the report will be distributed so that the LCM, the SPM and the cognizant Planning Yard are informed of the progress of the task(s).

3.7.2 Naval Message Completion Report. Upon completion of the installation, the AIT and ship will send a “joint” naval message reporting completion of the effort, plus any deficiencies in the installation and the comments of the ship Commanding Officer

relative to the installation. A sample naval message format for this report is provided in Appendix C.

3.7.3 Alteration Completion Report. The AIT shall forward copies of the Alteration Completion Report (Appendix C) to the applicable TYCOM, Group Commander, Squadron Commander and cognizant NSA within 15 working days of alteration completion. The Alteration Completion Report will include all required signatures and data filled in on all applicable attachments. The AIT will also forward copies of the Alteration Completion Report to the LCM, the cognizant SPM, the ship's CDM, and the cognizant Planning Yard (if the Planning Yard is not the CDM) within 15 working days of alteration completion. For alterations to CV/CVN's, a copy shall also be forwarded to SUPSHIP Newport News (Code 1800); for submarines, to SUBMEPP (Code 1800); for surface ships, to SUPSHIP Portsmouth (Code 900). In addition, the Planning Yard shall also receive a redlined copy of all alteration drawings, marked-up to indicate all variances from the original drawings, as part of the report. Planning Yards will notify the cognizant SPM in the event of non-receipt of an Alteration Completion Report within 30 days of the scheduled completion date initially established in accordance with the provisions of this specification. AIT Activities responsible for relatively large numbers of AIT equipment alteration installations may customize the format of Appendix C as long as all essential information required by the LCM, SPM, CDM, NSLC and Planning Yard for their alterations is included.

3.7.4 Naval Message Final Completion Report. Upon correction of all deficiencies reported in the Completion Report, the ship receiving the alteration installation will send a naval message Final Completion Report accepting the installation as complete. A sample naval message format for this report is provided in Appendix C.

4. QUALITY SYSTEM PROVISIONS

4.1 AIT Responsibilities. The AIT shall provide and maintain a Quality System in accordance with Appendix D. Upon request by the cognizant NSA, AITs will be required to show proof that their Quality System has been accepted by NAVSEA 04XQ or a SUPSHIP office. Additionally, all other contractually related procedures requiring acceptance shall be available to the NSA prior to the start of shipwork when requested.

4.2 Acceptance of the Quality Systems.

4.2.1 Initial Acceptance. Contractors and Government Activities performing AIT work shall submit their Quality System for review and acceptance to NAVSEA 04XQ. The Quality System shall comply with the requirements of Appendix D.

4.2.1.1 SUPSHIP Acceptance. SUPSHIP offices are authorized, if tasked, to review and accept an AIT's Quality System. The SUPSHIP office shall then forward a copy of the acceptance letter to NAVSEA 04XQ for their master files.

NOTE: MSRA and ABR contractors. Contractors performing AIT work who are MSRA or ABR Agreement holders are not required to submit their Quality System to NAVSEA 04XQ, but must maintain a current Quality System that has been accepted by their cognizant SUPSHIP.

4.3 Resubmittal. Upon acceptance by NAVSEA 04XQ or a SUPSHIP office, the Quality System does not require resubmittal or re-acceptance unless changes to technical requirements are made or the AIT contractor's status changes.

5. SPECIFICATION COMPLIANCE

5.1 Performance Inspections/Compliance Audits. The TYCOMs, NSAs, Headquarters Systems Commands (NAVSEA, SPAWAR, NAVAIR), SPMs, LCMs and the Planning Yards will normally perform inspections of installations on a sampling basis and will use the evidence of this sampling as indicating conformance or nonconformance with this specification. In addition, the accepted Quality System will also be subject to periodic compliance audits to the requirements of Appendix D.

APPENDIX A

AIT TASKING DATA

AIT TASKING DATA

a. The specific alteration(s) covered by the task.

b. The specific applicable hull(s) covered by the task.

c. The type of task (alteration design or accomplishment).

d. Whether NAVSEA 0902-018-2010, NAVSEA S9070-AA-MME-010/-SSN/SSBN, NAVSEA S9AAO-AB-GOS-010/GSO or other general specification is invoked for basic guidance for design, installation, material selection, testing and certification requirements.

e. The SPM point(s) of contact.

f. The equipment/system LCM (NAVAIR, NAVSEA, SPAWAR, etc.) point of contact and, when certification in accordance with NAVSEA S9040-AA-GTP-010/SSCR is required, the designated Certifying Authority.

g. The AIT Manager point of contact (if other than the LCM or the SPM).

h. The applicable Class Planning Yard(s) points of contact.

i. Monthly Task Status Reports to the AIT Manager (tasking activity) with copies to all other interested activities (the applicable TYCOMs and NSAs, the SPM, the equipment/system LCM, the applicable Planning Yard[s] and the OPNAV platform and/or program sponsors [when requested], etc.) are required.

j. Approval requirements for installation design products (SHIPALT installation drawings (SIDs), test procedures, etc.) for installation design tasks.

k. An Alteration Completion Report (Appendix C) is required upon alteration accomplishment. A Naval message report is also required for accomplishment outside a CNO scheduled availability.

l. An acceptable Quality System (see Appendix D) is required prior to commencing installations.

m. The AIT Manager shall ensure that copies of the task (and all subsequent changes) are forwarded to the SPM, the LCM, and the applicable Planning Yard. When copies of tasks are received by the LCM, the LCM will complete AIT checklists and all logistic products required to support the installation, including Allowance Parts lists, Preliminary Allowance Lists, Planned Maintenance System Documentation, Technical Manuals and Changes and forward copies to the AIT for delivery to the ships.

APPENDIX B

AIT SUPPORT REQUIREMENTS CHECKLIST

ALTERATION INSTALLATION TEAM (AIT) SUPPORT REQUIREMENTS CHECKLIST

ALTERATION NUMBER	ALTERATION BRIEF	INSTALLER/SPONSOR

SERVICE REQUIREMENTS
CHECK REQUIRED SERVICES AND FILL IN BLANKS FOR REQUIREMENTS

☐ CRANE AND OPERATOR (Number of lifts required): MAXIMUM LIFT HEIGHT REQUIRED:
Notes: 1) Maximum crane lift shall not exceed 10,000 pounds..

☐ RIGGING (Mandays required):

☐ FORKLIFT (Mandays required):
Notes: 1) Maximum lift for the forklift NTE 2,000 lbs.

☐ COMPRESSED AIR (List requirements):

☐ STORAGE/LAY-DOWN AREA (List requirements):

☐ OFFICE SPACE:

DESKS (Number required):

PHONE/FAX/DATA LINES (List requirements):

COPIER (List requirements):

PARKING SPACES (Number required):

☐ TANK WORK (List tanks to be opened):

☐Defuel/pump down ☐Gas-free
☐Defuel/pump down ☐Gas-free
☐Defuel/pump down ☐Gas-free
☐Defuel/pump down ☐Gas-free
☐Defuel/pump down ☐Gas-free
(Continue on sheet 2 "Remarks")

☐ WELDING SERVICES (Mandays required):

☐ FIREWATCH

☐ SANDBLASTING/PAINTING SERVICES (Mandays required):

☐ INSULATION/LAGGING SERVICES (Mandays required):

☐ STAGING REQUIRED (List locations):

☐ TEMPORARY ELECTRICAL SERVICES (List locations and requirements):

SERVICE REQUIREMENTS CONTINUED
CHECK REQUIRED SERVICES AND FILL IN BLANKS FOR REQUIREMENTS

☐ VENTILATION/TEMPORARY AIR CONDITIONING (List requirements):

☐ SPECIAL TOOLS (List requirements):

☐ OTHER REQUIREMENTS/REMARKS (List):

POINT OF CONTACT FOR THE AIT REPRESENTATIVE:

This Checklist Will Be Submitted to the Cognizant Advanced Planner Before Day A-minus 135 of the Availability.

APPENDIX C

MESSAGES & REPORTS

CONTENTS

SUGGESTED NAVAL MESSAGE FORMAT FOR INSTALLATION COMPLETION REPORT

ADMINISTRATIVE MESSAGE
ROUTINE
R (DTG)
FM SHIP/STATION
TO ISIC
INFO TYPE COMMANDER//N4/N6//
GROUP COMMANDER
NAVAL SUPERVISING ACTIVITY (as applicable)
PLANNING YARD
SHIP'S CONFIGURATION DATA MANAGER (IF OTHER THAN PLANNING YARD)
IN SERVICE ENGINEERING AGENT (ISEA)
LIFE CYCLE MANAGER (LCM)
COMNAVSEASYSCOM WASHINGTON DC//04M5/05/PMS444/SPM//
PEO (as applicable)
COMSPAWARSYSCOM SAN DIEGO CA//04F//
NAVICP MECHANICSBURG PA//
FTSC (as applicable)
CHET//SURFACE COORDINATOR// (SURFACE COMBATANTS)
SUPSHIPS NEWPORT NEWS VA//1800//(CARRIERS ONLY)
SUPSHIPS PORTSMOUTH VA//900//(SURFACE SHIP ONLY)
SUBMEPP PORTSMOUTH NH//1800//(SUBMARINE ONLY)
Cognizant NSA command

UNCLAS //NO4720//
MSGID/GENADMIN//
SUBJ/(EQUIPMENT/SYSTEM INSTALLATION ON USS SHIP)
RMKS/
1. THIS IS A JOINT (SHIP)/AIT MESSAGE.
2. (EQUIPMENT/SYSTEM) WAS (INSTALLED/MODIFIED/REMOVED) ON (COMPLETION DATE) AND ACCEPTED AS OPERATIONAL WITH/WITHOUT DISCREPANCIES. (List all known discrepancies, responsible activity, and date discrepancy will be completed. If there are no discrepancies, this is the final and only message report required.)
3. FOLLOWING INFORMATION PROVIDED:
   A. TYPE INSTALLATION:
   B. ALTERATION NUMBER:
   C. SYSTEM OPERATION VERIFICATION TESTING (SOVT) CONDUCTED:
   D. NO CHANGES TO SIDS ARE REQUIRED / SIDS REQUIRE REVISION.
   E. REDLINE DWGS HAVE BEEN FORWARDED TO THE PY.
   F. ALTERATION COMPLETION REPORT COMPLETED AND FORWARDED
   G. EQUIPMENT INSTALLED: NOMENCLATURE, SERIAL NUMBER, 4790/CK JCL
   H. ILS STATUS STATEMENT (individually listed MAMs to include serial number)
   I. SUMMARY OF INSTALLATION
4. INSTALLATION ACTIVITY POC
5. COMMANDING OFFICER'S COMMENTS.

SUGGESTED NAVAL MESSAGE FORMAT FOR FINAL COMPLETION REPORT

ADMINISTRATIVE MESSAGE
ROUTINE
R (DTG)
FM SHIP/STATION
TO ISIC
INFO TYPE COMMANDER//N4/N6//
GROUP COMMANDER
PLANNING YARD
SHIP'S CONFIGURATION DATA MANAGER (IF OTHER THAN PLANNING YARD)
LIFE CYCLE MANAGER (LCM)
IN SERVICE ENGINEERING AGENT (ISEA)
COMNAVSEASYSCOM WASHINGTON DC//04M5/05/PEOEXW/PMS444/PEO/SPM//
COMSPAWARSYSCOM SAN DIEGO CA//SPAWAR 04F//
NAVICP MECHANICSBURG PA//
FTSCLANT/PAC
CHET//Surface coordinator//
SUPSHIPS NEWPORT NEWS VA//1800//
Cognizant NSA command

UNCLAS //NO4720//

MSGID/GENADMIN//
SUBJ/(EQUIPMENT/SYSTEM INSTALLATION ON USS SHIP)
REF/A/RMG/SHIP/STATION/DTG//(ORIGINAL INSTALLTION MSG RPT)
REF/B/DOC/DATE/SERIAL// (AIT INSTALLATION COMPLETION REPORT)

RMKS/
1. THIS IS A FINAL COMPLETION REPORT MESSAGE.
2. (EQUIPMENT/SYSTEM) WAS (INSTALLED/MODIFIED/REMOVED) ON (COMPLETION DATE). ALL DISCREPANCIES LISTED IN REFS A AND B CORRECTED/COMPLETED.
3. INSTALLATION ACTIVITY POC
4. COMMANDING OFFICERS COMMENTS.

ALTERATION COMPLETION REPORT

ALTERATION NO.: _____
ALTERATION BRIEF: _____
CONCURRENT ALTERATION NO.: _____
CONCURRENT ALTERATION BRIEF: _____

SHIP HULL NO.: _____ SHIP NAME: _____
SHIP CLASS: _____ PLANNING YARD: _____
TYPE COMMANDER: _____ SQUADRON/GROUP: _____

SHIP PROGRAM MANAGER (SPM)
Point of Contact: _____
PLANNING YARD
Point of Contact: _____
LIFE CYCLE MANAGER
Point of Contact: _____
INSTALLING ACTIVITY
Point of Contact: _____
NAVAL SUPERVISING ACTIVITY
Point of Contact: _____

INSTALLATION DATES: _____ to _____

SHIP	AIT On-site Installation Coordinator
_____ (Signature)	_____ (Signature)
_____ (Printed Name)	_____ (Printed Name)
_____ (Department/Division)	_____ (Department/Division)
_____ (Phone) _____ (Date)	_____ (Phone) _____ (Date)

This signature does not accept the alteration as complete if there are discrepancies noted in Attachment (1). The Ship shall not accept the alteration as complete until all discrepancies noted in Attachment (1) are corrected, at which time the ship will accept the alteration as complete by Naval message. A suggested message format is provided in this appendix.

DISTRIBUTION:
SHIP
Type Commander
Group Commander
Squadron Commander
Naval Supervising Activity(NSA)
AMP FCO
Life Cycle Manager(LCM)

NAVSEA Ship’s Program Manager(SPM) and NAVSEA 04M5
In Service Engineering Agent(If different than LCM)
Ship’s Configuration Data Manager(CDM)
Planning Yard (if different than the CDM)
SUPSHIP NEWPORT NEWS (Code 1800) (Carriers only)
SUBMEPP PORTSMOUTH NH (Code 1800) (Submarines only)
SUPSHIP PORTSMOUTH VA (Code 900) (Surface Ships only)

ATTACHMENTS: (Circle reports applicable and provided)
(1) GENERAL REPORT (SHIPALT/TEMPALT ONLY)
(2) INTEGRATED LOGISTICS SUPPORT VERIFICATION STATEMENT CHECKLIST (ALL INSTALLATIONS)
(3) END OF INSTALLATION (EOI) ILS REPORT (ALL INSTALLATIONS)
(4) PHYSICAL CONFIGURATION AUDIT REPORT (ALL INSTALLATIONS)
(5) TRAINING VERIFICATION STATEMENT (ALL INSTALLATIONS)
(6) SIGSEC, TEMPEST Visual Report (if applicable [See NSTISSAM TEMPEST/2-95])
(7) HF ANTENNA INSTLN AND IMPEDANCE REPORT (cover sheet, if applicable [See NAVSEA S9AA0-AA-SPN-010/GEN-SPEC, Sec 400])
(8) CABLE/CABLEWAY INSPECTION REPORT (if applicable [See NAVSEAINST 9304.1])
(9) CERTIFICATION TEST FINDINGS/REPORT (if applicable (See NAVSEA S9040-AA-GTP-010/SSCR)

GENERAL REPORT

ALTERATION IDENT: _____
(Type Hull-Class-Alteration Number)

SHIP: _____ ALTERATION ACCOMP DATE: _____
(Hull No./Name) (From - To)

This report documents the proper installation of (SHIPALT/TEMPALT identification). To ensure conformance with quality standards and installation specifications and procedures, a physical installation shipcheck was conducted jointly by Ship's Force and the Alteration Installation Team (AIT) for completion of the various elements of this report. Non-acceptance of an individual element requires that the Remarks line be filled-in by Ship's Force. The AIT will provide a POA&M for completion or correction of all non-acceptance items within five (5) working days of rejection of the individual element. The POA&M will describe the degree of completion or correction required, the lead activity point of contact, and the scheduled completion date. Final completion of discrepancies will be accepted jointly by Ship's Force and the lead installing activity. AIT Coordinator blocks is to be signed by the AIT On-site Installation Coordinator.

1. In-Briefing. An In-Brief by a Government representative was held with Ship's Force and a NSA representative.

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

2. Pre-Installation Check-Out (PICO). A PICO was conducted on existing systems/equipment to verify operational status. Testing was conducted by Ship's Force and witnessed by the AIT. PICO report was provided to ship’s force representatives within three working days of PICO completion.

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

3. Operational and/or operational testing. An equipment operational test and/or System Operational and Verification Test (SOVT) was performed on all equipments/systems impacted by accomplishment of the alteration.

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

4. Integrated Logistic Support (ILS). ILS for new equipments was provided and verified (see Attachments 2,3,and 10).

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

5. Training. On-the-Job operator and maintenance training for ship's force was conducted and verified (see attachment **5**).

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

6. Physical Installation Shipcheck. To ensure conformance with quality standards and procedures, the following elements were shipchecked after completion of shipwork:

a. Design conformance. Alteration was accomplished in accordance with the approved alteration drawings provided.

Ship's Force _____ AIT Coordinator_____
Planning Yard Representative _____
Remarks: _____
_____

b. Equipment access. Access to new and relocated equipment is acceptable for operation and maintenance of the equipment including access to connectors where practicable.

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

c. Removal items. In addition to items indicated on removal drawings, piping, cabling, mounts, racks, foundations, pipe/cable hangers, etc., which were made unnecessary or redundant as a result of the accomplishment of the alteration have been removed and properly disposed of.

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

d. Structural installation. All structural work (deck/bulkhead modifications, foundations, etc.) is satisfactory in terms of workmanship, fit, function, preservation and finish.

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

e. Piping installation. All piping work (pipe modifications, valves, pipe fittings, etc.) is satisfactory in terms of workmanship, fit, function, preservation and finish.

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

f. Cabling. Cabling is satisfactory in terms of type, function, workmanship, designation and marking, cable shield grounding, cable entry into equipment, penetrations (including coamings), routing (including avoidance of interferences with equipment or personnel/material movement), acceptable bending radius and finish.

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

g. Cableways. Cableway work (hangers, supports and trunks) is satisfactory in terms of workmanship, clearances, spacing, new hanger/support installation (when required), fit and finish. New banding has been applied to all new or disturbed hangers.

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

h. Wiring. Wiring is satisfactory in terms of workmanship, designation and marking, terminal lug application (proper type, size, and attachment process [crimp/solder]), sufficient wire length, signal shield terminations, and wire routing within equipment.

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

i. Connectors. Connector work is satisfactory in terms of workmanship, connector selection, connector assembly (fully pinned with proper pin type, size, and attachment process [crimp/solder]), sufficient wire length, backshell application (type, assembly, cable shield termination, strain relief, etc.), and accessibility.

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

j. Grounding and bonding. Grounding and bonding requirements for safety, TEMPEST, and electromagnetic interference (EMI)/intermediate modulation interference (IMI)/radio frequency interference (RFI) have been observed and properly applied and is satisfactory in terms of workmanship, fit, function, preservation and finish.

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

k. Labels and label plates. New labels and label plates have been installed where required (piping, valves, equipment, racks, switch/patch boards, panels, connection boxes, etc.). Existing labels and label plates removed or damaged during accomplishment of the alteration and requiring restoration or relocation have been restored. Labels and label plates are properly applied and are satisfactory in terms of workmanship, type, fit, function and finish.

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

l. Compartment marking. Existing compartment marking removed or damaged during accomplishment of the alteration and requiring restoration or relocation have been restored in accordance with NAVSEA S9086-CN-STM-020/CH-79 V2 and NAVSEA S9086-RK-STM-010/CH-505. Marking is properly applied and is satisfactory in terms of workmanship, type, fit, function and finish.

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

m. Impacted equipment condition. Equipment installed or relocated as a result of the alteration accomplishment have been tested and demonstrated to be operational and free from defects. Equipment or components removed and reinstalled as interferences are in at least an "as-found" condition. Interference items which were operational prior to removal have been tested and have been demonstrated to be operational and free from defects. (See NAVSEA Standard Item 009-23)

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

n. Clean-up. Chips, shavings, refuse, dirt, fluids (including water), and all scrap and other foreign material, including hazardous waste, industrial waste and excess hazardous material produced as a result of the accomplishment of alteration have been removed from spaces and areas impacted by the alteration. Operational spaces, tanks and unoccupied spaces and compartments have been left "broom clean".

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

o. Out Briefing. An Out Brief by a Government representative was held with Ship's Force and an NSA representative.

Ship's Force _____ AIT Coordinator_____
Remarks: _____

7. Redline Drawings. Redline drawings will be forwarded to the planning yard within 15 working days.

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

8. Correction of Discrepancies (if required). POA&M(s) for discrepancies noted above is(are) as follows:

_____
_____
_____
_____

Ship's Force _____ AIT Coordinator_____
Remarks: _____
_____

AIT ILS VERIFICATION STATEMENT CHECKLIST COMPLETION INSTRUCTIONS

1. The AIT Checklist must be completed for all Ship Alterations (SHIPALTs), TEMPALTs, Ordnance Alterations (ORDALTs), Engineering Changes (ECs), Field Changes (FCs), Machinery Alterations (MACHALTs), and all other configuration changes accomplished by an Alteration Installation Team (AIT). An AIT is a Navy activity (military, government civilian or civilian contractor, including shipyard TIGER teams and intermediate maintenance activities) tasked and supervised by a Headquarters/Hardware Systems Command (HSC) or Type Commander (TYCOM). AITs are trained and equipped to accomplish approved shipboard installations and modifications, including Alterations Equivalent to Repair (AERs), on specific ships.

2. Specific completion instructions are as follows:

a. Annotate items that do not apply as “NA” (Not Applicable).

b. To report ILS verification for multiple ALTs accomplished on single system/equipment the use of a matrix highlighting applicability of each checklist item is authorized.

c. For AIT installs completed outside of Integrated Logistics Overhaul (ILO) or Integrated Logistics Review (ILR), complete Section I only.

d. For AIT installs completed during an Integrated Logistics Overhaul (ILO) or Integrated Logistics Review (ILR), complete Section II only.

e. For ships in ILO/ILR but not co-located with the ILO, complete Section I only.

f. Obtain signature of authorized acting personnel or equivalent duty personnel in absence of designated individual. Command Duty Officer (CDO) will be point of contact if dept. head/dept. duty officer is not available. Prior to certifying delivery of ILS products, ship’s authorized agent must verify ILS products listed in the Logistics Support Products provided to Ship were delivered.

g. All AITs must check-in/check-out with applicable NSA before and after install.

h. Use the EOI ILS REPORT (Attachment 3 of this Appendix) to list all Logistics Support Products Provided to Ship, (Technical manuals by identification number, MIPs/MRCs by number, Test Equipment by SCAT code, APL/AELs by number, with LSSC status indicated and listing of all material being delivered by category [OBRPs, MAMs and OSI by NSN or P/N]).

i. Prepare an Exception Report for deficient ILS, identifying the activity responsible for providing deficient ILS and expected delivery date.

3. The completed checklist and EOI ILS Document shall be attached to the Completion Report. A copy of the completed checklist and EOI Document will be forwarded to Naval Sea Logistics Center (NSLC) Code N54.

SECTION I - AIT Installations Completed Outside of an ILO/ILR

AIT CHECKLIST **ALT Type/#:** **_____Date:_____** **Ship:_____ Installing Activity:_____**	**PRINTED NAME** **SIGNATURE**	**RATE / RANK**	**DATE**
CHECK-IN: Appropriate NSA signature required: (i.e., C-HET, Port Engineer, Maintenance Manager, Squadron Maintenance Officer or Regional Maintenance Center) depending upon ship type/location.			
WORK CENTER/DEPT. Ship's Dept. Head (Or Acting) Signature Required.*			
Deliver special tools and special test equipment to Work Center.[1]			
Certify copies of Tech. Manuals and Manufacturer Manuals for COTS/NDI have been provided to Work Center.[1,2,3]			
Deliver Operational Sequencing System (OSS) documentation to Work Center.[3]			
Deliver Software Programs to Work Center.[3]			
Deliver or provide On-Board Training (OBT) to ship's crew, if applicable.			
SUPPLY OFFICER Ship's Dept. Head (Or Acting) Signature Required.*			
Deliver MAMs and associated supply/material support data listings[4] to SUPPO for sub-custody to appropriate work center in accordance with TYCOM directives.			
Deliver repair parts (OBRPs) and a copy of associated supply/material support data listings to SUPPO.[1,4]			
If Automated Shore Interface (ASI) tape or disk accompanied by TYCOM cover letter is provided, deliver to SUPPO with processing inst.			
Provide SUPPO a listing of all MAMs removed from the Work Center. SUPPO document transfer of MAMs to AIT rep. on DD1149 expenditure document.			
Provide SUPPO a listing of all upgraded MAMs in the Work Center including a cross reference of old to new part number and stock numbers.			
Deliver hard copy allowance documentation (APLs/AELs) to SUPPO for SNAP I ships (optional if data included in SNAP II).[1]			
Certify PMS documentation (MIPs/MRCs) has been provided to the Work Center and 3M office.			
Deliver SSRD markups and redlined installation drawings to SUPPO.[1,3]			
Certify additional copies of Tech. Manuals have been provided to 3M Coordinator.[1,2,3]			
3M COORDINATOR 3M Coordinator signature required.*			
Deliver completed 4790/CKs for all configuration alterations (adds, deletes and modifications) to the 3M Coordinator (copy to NSA) if not entered into SNAP. If entered in SNAP, provide applicable data to both 3M Coordinator and NSA.[1]	JCN		

AIT CHECKLIST ALT Type/#: _____Date:_____ Ship:_____ Installing Activity:_____	PRINTED NAME SIGNATURE	RATE / RANK	DATE
CHECK-OUT: Appropriate signature required from cognizant ships force Department Head, Supply Officer or 3M Coordinator. Final check-out signature is NSA**.**			

* The Command Duty Officer (CDO) will be the point of contact if the dept. head/dept. duty officer is not available.
[1]For CV/CVNs deliver to Maintenance Support Center (MSC). MSC signature required. The authorized acting personnel in the absence of the designated individual are the Combat System Officer of the Watch (CSOOW).
[2]Technical manuals provided in electronic media format (CD-ROM) must be loaded into the Advanced Technical Information System (ATIS).
[3]For AEGIS ships Combat Systems material, deliver to Combat Systems Maintenance Central (CSMC) Systems Test Officer (STO). STO signature required. For HM&E material, deliver to Central Control Station (CCS).
[4]SNAP is the only official source of configuration and supply data. This list is for the administrative use of the AIT only. In the event of a conflict between the list and SNAP, SNAP always takes precedence.

SECTION II - AIT Installations Completed During an ILO/ILR

AIT CHECKLIST ALT Type/#: _____Date:_____ Ship:_____ Installing Activity:_____	PRINTED NAME SIGNATURE	RATE / RANK	DATE
CHECK-IN: Appropriate NSA signature required: (i.e., C-HET, Port Engineer, Maintenance Manager, Squadron Maintenance Officer or Regional Maintenance Center) depending upon ship type/location.			
WORK CENTER/DEPT. Ship's Dept. Head (Or Acting) Signature Required.*			
Deliver special tools and special test equipment to Work Center.			
Deliver Operational Sequencing System (OSS) documentation to Work Center.[3]			
Deliver Software Programs to Work Center.[3]			
Deliver or provide On-Board Training (OBT) to ship's crew, if applicable.			
SUPPLY OFFICER Ship's Dept. Head (Or Acting) Signature Required.*			
SUPPO document transfer of MAMs to AIT rep. on DD1149 expenditure document.			
FLTILOTEAM Logistics Management Specialist signature required.*			
Deliver SSRD markups and redlined installation drawings to FLTILOTEAM. [1,3]			
Certify all Tech. Manuals have been provided to FLTILOTEAM.[1,2,3]			
Deliver MAMs and associated supply/material support data listings[4] to FLTILOTEAM. A copy shall be provided to SUPPO for sub-custody to appropriate work center in accordance with TYCOM directives.			
Deliver repair parts (OBRPs) and associated supply/material support data listings[4] to FLTILOTEAM.			
Provide FLTILOTEAM a listing of all MAMs removed from the Work Center.			
If Automated Shore Interface (ASI) tape or disk accompanied by TYCOM cover letter is provided, deliver to FLTILOTEAM with processing instruction.			
Provide FLTILOTEAM a listing of all upgraded MAMs in the Work Center including a cross reference of old to new part number and stock numbers.			
Deliver hard copy allowance documentation (APLs/AELs) to FLTILOTEAM.[1]			
Certify PMS documentation (MIPs/MRCs) has been provided to FLTILOTEAM.			
Deliver completed 4790/CKs and 2Kilos for all configuration alterations (adds, deletes and modifications) to the FLTILOTEAM or appropriate NSA			

AIT CHECKLIST ALT Type/#: _____Date:_____ Ship:_____ Installing Activity:_____	PRINTED NAME SIGNATURE	RATE / RANK	DATE
CHECK-OUT: Appropriate signature required from cognizant ships force Department Head, Supply Officer or 3M Coordinator. Final check-out signature is NSA.			

* The Command Duty Officer (CDO) will be the point of contact if the dept. head/dept. duty officer is not available.
[1]For CV/CVNs deliver to Maintenance Support Center (MSC). MSC signature required. The authorized acting personnel in the absence of the designated individual are the Combat System Officer of the Watch (CSOOW).
[2]Technical manuals provided in electronic media format (CD-ROM) must be loaded into the Advanced Technical Information System (ATIS).
[3]For AEGIS ships Combat Systems material, deliver to Combat Systems Maintenance Central (CSMC) Systems Test Officer (STO). STO signature required. For HM&E material, deliver to Central Control Station (CCS).
[4]SNAP is the only official source of configuration and supply data. This list is for the administrative use of the AIT only. In the event of a conflict between the list and SNAP, SNAP always takes precedence.

EXCEPTIONS TO ILS VERIFICATION

ALTERATION IDENT: _____
(Type Hull-Class-Alteration Number)

SHIP: _____ ALTERATION ACCOMP DATE: _____
(Hull No./Name) (From - To)

INSTALLING ACTIVITY: _____

1. The following ILS was not provided upon completion of this alteration:

a. Technical Manuals (listed by identification number and equipment application).

b. Spares Support that is without RIC/PAL No./Interim Repair Parts (listed by Equipment Nomenclature)

c. COSAL Updates (list documentation not onboard)

d. Test Equipment and MAMS (listed by Equipment Nomenclature)

e. PMS Documentation (listed by Maintenance Index Pages (MIPs), Maintenance Requirements Card (MRC) Numbers)

f. SSRD Markups (list mark-ups not onboard)

g. Installation Drawings (list drawings not onboard)

2. The following information is provided for items indicated in paragraph (1):

a. Information on how and when this missing ILS was ordered (i.e. Requisition Number, Letter/Transmittal Number, etc.).

b. Information on the current status/estimated receipt date/reason for late arrival (if known) (i.e. out of stock, not developed, etc.).

c. Information on the anticipated method of transfer to the ship when received (i.e. transshipment, forwarding letter, to be accomplished by someone other than NSA/AIT, etc.)

4720
Ser XXX/XXXX

From: INSTALLING ACTIVITY
To: APPLICABLE SPM

Subj: EOI ILS REPORT FOR USS( ) OF ( )2000

Encl: (1)Alteration ILS Summary
(2)Onboard Repair Parts Summary

1. Provision of the following logistic support products is certified in accordance with 9090-310C Certification criteria:

ALT	EQUIPMENT	OPNAV 4790/ CK	SNAP UPDATE	REPAIR PARTS	TECH DOC	PMS	TEST EQUIP

LEGEND:
C - COMPLETE - ENCL (1) AND ATTACHMENTS THERETO PROVIDE ILS STATUS
I - INCOMPLETE - ENCL (1) PROVIDES STATUS OF INCOMPLETE ACTIONS
N - NOT APPLICABLE - ALTERATION DOES NOT IMPACT ILS

2. Activity Name, Code point of contact is _____, Commercial (XXX)XXX-XXXX/DSN XXX-XXXX, or Commercial (XXX) XXX-XXXX/DSN XXX-XXXX.

By direction

Copy to:
COMNAVSEASYSCOM (PMS 444)
TYCOM
Cognizant NSA
ISEA
CDM
PLANNING YARD
NAVSEALOGCEN (CODE N54)
FLTILOACT/FTSCPAC (if applicable)
CHET (if applicable)
USS ( )

Attachment (3)

CONTINUATION SHEET

USS ( )

ALT	EQUIPMENT	OPNAV 4790 CK	SNAP UPDATE	REPAIR PARTS	TECH DOC	PMS	TEST EQUIP

ALTERATION ILS SUMMARY FOR USS _____

SHIP IS SNAP I _____ SNAP II __X__ NON SNAP

	STATUS	NOTE
1. Updated SNAP Data Base		
2. Provided Push Spares to Supply Department		
3. Provided ADD/DELETE List for On board Repair Parts (OBRPs)		
4. Provided COSAL SOAPL update information (NON SNAP ONLY)		
5. Provided COSAL Part I Sections A & B update information (NON SNAP ONLY)		
6. Provided Hard Copy APL as indicated below		
7. Provided Technical Documentation identified on page __		

Following APL's were provided and/or deleted:

ALT	APL NUMBER	LSSC	EIC	DATE	MOD FLSIP	.25 FLSIP	.50 FLSIP	APL ADD /DEL

NOTES: (1) SNAP DATA BASE UPDATED BY JSN'S: PENDING TRANSACTION REPORT IS ATTACHED.
(2) SNAP DATA BASED UPDATED BY JSN'S: _____ (3) SKELETONIZED CK PROVIDED TO SHIP FOR UPDATING SNAP.
(4) PROVIDED SKELETONIZED CKS FOR GENERATION OF TYPE 2 CONFIGURATION RECORDS BY SHIP'S COMPANY. COPIES OF CKS ARE ATTACHED

REMARKS:

ONBOARD REPAIR PARTS SUMMARY

ALT NO.	PART NUMBER	NSN	NOMENCLATURE	ADD		DELETE		APL	NOTE
				QTY	ONBD	QTY	REMVD		

NOTES: (1) PART SHOULD BE REQUISITIONED BY THE SHIP
(2) SRI PUSHED BY ALTERATION
(3) OSI/MAM PUSHED BY ALTERATION
(4) ITEM DELETED FROM ALLOWANCE PART LIST/REMOVED SEE PAGE
(5) PART MODIFIED SEE PAGE FOR DETAILED INFORMATION
(6) NON ALLOWED PUSH ITEM SHIP TO STOCK AS AT7 (NON DLR) OR AT5 (DLR)

MODIFIED SPARES

MODIFIED	PART NUMBER	NSN	NOMENCLATURE	SER	QTY	O/B	ALT	APL	NOTE
FROM									
TO									
FROM									
TO									
FROM									
TO									
FROM									
TO									

TECHNICAL DOCUMENTATION STATUS

	TECHNICAL MANUALS							PMS			
ALT NO	BASIC MANUAL AND NSN	VOL	PART	REV	CHG	ON BOARD Y	N	MIP/MRC	ON BOARD Y	N	NOTE

Remarks: (1)

REMOVED MATERIAL

THE FOLLOWING MATERIALS WERE REMOVED FROM THE EQUIPMENT ONLY AND RETURNED TO:
(SEE BELOW)

ALT	PART NO.	NSN	NOMENCLATURE	QTY	NOTE

NOTES: (1) DISPOSITION CODES

PHYSICAL CONFIGURATION AUDIT REPORT

ALTERATION IDENT: _____
(Type Hull-Class-Alteration Number)

SHIP: _____ ALTERATION ACCOMP DATE: _____
(Hull No./Name) (From - To)

INSTALLING ACTIVITY: _____

EQUIPMENT NOMENCLATURE _____

SERIAL NO.: _____

LOCATION: _____

EQUIPMENT DISPOSITION:

__ INSTALLED __ REMOVED __ MODIFIED

EIC NO.: _____

4790/CK JCN: _____ (4790/CK ATTACHED)

TECHNICAL MANUAL(S): _____
(New/Revised/Copies)
_____

_____

APL/AEL/PAL: _____

TEST EQUIPMENT: _____

_____

_____

PMS DOCUMENTATION: _____ (MIP NO.)

REMARKS:

TRAINING VERIFICATION STATEMENT

ALTERATION IDENT: _____
(Type Hull-Class-Alteration Number)

SHIP: _____ ALTERATION ACCOMP DATE: _____
(Hull No./Name) (From - To)

INSTALLING ACTIVITY: _____

1. It is hereby verified that on-the-job operator and maintenance training has been provided to the ship for equipments installed as part of the above alteration as follows:

OPERATOR TRAINING:	NAME	SIGNATURE
(Equipment)	_____	_____
	_____	_____
	_____	_____
	_____	_____
(Equipment)	_____	_____
	_____	_____
	_____	_____
	_____	_____

MAINTENANCE TRAINING:	NAME	SIGNATURE
(Equipment)	_____	_____
	_____	_____
	_____	_____
	_____	_____
(Equipment)	_____	_____
	_____	_____
	_____	_____
	_____	_____

2. Formal training for this equipment is available as follows:

Course No.	_____	Course No.	_____
CIN	_____	CIN	_____
Quota Control	_____	Quota Control	_____
Training Act	_____	Training Act	_____
Length	_____	Length	_____
NEC	_____	NEC	_____
Phone No.	_____	Phone No.	_____

APPENDIX D

ALTERATION INSTALLATION TEAM (AIT) QUALITY SYSTEM REQUIREMENTS

ALTERATION INSTALLATION TEAM (AIT) QUALITY SYSTEM REQUIREMENTS

The AIT shall provide and maintain a documented Quality System to ensure product conformance to contractual requirements. The system shall, as a minimum, comply with the requirements of NAVSEA Standard Item 009-04 and all additional contract requirements.

NOTE: This will provide for the same level of quality assurance required for private sector industrial facilities under Master Ship Repair Agreements (MSRA) and Agreement for Boat Repairs (ABR).

1. General. The AIT shall maintain a quality system which will assure that all supplies and services provided for the accomplishment of alterations to ships conform to contract or task requirements whether manufactured or provided by the AIT, or procured from contractors or vendors. The quality system shall apply to supplies and services provided for the accomplishment of alteration to ships whether the alteration is a permanent change to the ship (SHIPALT), an equipment alteration (Field Change, Ordnance Alteration [ORDALT], etc.) or a temporary alteration (TEMPALT). The AIT shall perform or have performed the inspections and tests required to substantiate product conformance to approved design drawings, specifications, and contract or task requirements and shall also perform or have performed all inspections and tests otherwise required by applicable SHIPALT Records, installation drawings, contract or tasking documentation.

The Quality System shall include the following additional requirements, clarifications, and processes for:

1.1 Master Test Plans (MTPs). MTPs describe test objectives and the inspections and tests to be conducted to verify compliance with specifications and operating requirements to verify proper operation of impacted systems, equipment and interfaces after completion of shipwork. An MTP shall be prepared for each alteration (permanent or temporary), shall be prescribed by clear, complete and current instructions and shall be developed in conjunction with the Planning Yard, the system/equipment Life Cycle Manager (LCM) and the responsible In-Service Engineering Activity (ISEA). During accomplishment of an alteration, associated MTPs shall be provided to the ship, and the cognizant NSA.

1.2 Test Procedures (TPs). Equipment-unique TPs shall be obtained from the system/equipment LCM or the responsible ISEA

and shall cover in detail the procedures for accomplishment of each of the equipment unique tests required to demonstrate the proper operation of all equipment impacted by accomplishment of the alteration. This includes all equipments which where modified or relocated as a result of the accomplishment of the alteration. Testing will be adequate to demonstrate compliance with applicable installation certification requirements (SIGSEC, TEMPEST, RADHAZ/EMI/EMC, SUBSAFE, etc.). When TPs are not available from the system/equipment LCM or the responsible ISEA, the AIT shall develop the equipment unique TPs based on technical manual information and direct coordination with the responsible ISEA, Planning Yard and Class Planning SUPSHIP.

1.3 Process Controls. Process control procedures shall be an integral part of the quality system. In addition to process controls that may be required by the SHIPALT Record, installation drawing, or contract or tasking documentation, the AIT will provide and maintain such process controls as are necessary to assure the quality of shipwork. As a minimum, process controls shall include the following:

1.3.1 Design product control procedures. The AIT's design product control procedures shall cover:

a. Assignment of responsibility for detail examination, review, and internal approval authority for AIT design products.

b. Required qualifications of personnel performing detail examination, review, and approval of AIT design products.

c. Procedural flow of design drawings and other associated documentation.

d. Checklists to be used in the detail examination and review of design products. The checklists shall specify each examination to be performed to verify conformance of products to the applicable specifications.

e. Method of safeguarding classified information.

f. Methods providing for the prevention and ready detection of discrepancies and for timely and positive corrective action.

g. Method of safe storage of Master File Drawings, reference drawings, and other ship design documentation.

h. Methods providing for controlled issue of design drawing copies, both reproducible and non-reproducible.

1.3.2 Installation process control procedures. Instructions shall be developed which identify requirements necessary to preclude damage to the ship or injury to personnel during the accomplishment of shipwork. These instructions shall include, but are not limited to:

a. Control of Magnetic Material.

b. Material Storage at the work site.

c. Storage and use of hazardous materials including:

(1) Control of respirable fibers from man-made mineral fiber thermal insulating material during insulation and lagging operations.

(2) Control of fluorocarbons when utilized aboard ship.

(3) Control of MIL-H-19457 and MIL-H-22072 hydraulic fluid when utilized aboard ship.

(4) Control, clean-up, and disposal of PCBs.

(5) Control, clean-up, safety precautions, and environmental precautions for organotin.

(6) Initial monitoring, daily monitoring, and control of insulation and lagging operations.

d. Fire prevention.

e. Sight and hearing protection.

f. Material for staging and screening, temporary covers and shelters.

g. Installation of cofferdams, patches, and shaft wraps.

h. Hotwork including:

(1) Determination of gas-Free status and for control of hot work safety. (Note: AITs are required to use an OSHA certified marine chemist for entry into confined spaces.)

(2) Welding, brazing, and inspection operations (one for each operation).

i. Uncrating/unpacking of equipment.

j. Storage and use of tools and test equipment.

k. Protection of pipes, cables, and equipment during shipwork.

l. System or equipment de-activation/reactivation.

m. Control of connector fabrication.

n. Workmanship. As a minimum, workmanship shall comply with all contract specifications including applicable NAVSEA Standard Items.

NOTE: Procedures required to control processes in the Safety and Environmental area, are not required to be submitted as part of the written Quality System.

1.4 Personnel Certifications. Procedures shall be maintained to assure personnel certifications that may be required to perform shipwork, depending on the work to be accomplished. These certifications include, but are not limited to, the following:

a. Hot work.

(1) Competent Person - Department of Labor Form OSHA 73, Designation of Competent Person(s) for each certified member of the AIT and designation of the certified Marine Chemist(s) responsible of preparing certificates.

(2) Firewatch personnel. Certificates of training for fire watch standing.

(3) Tank cleaning personnel. Certificates of safety practices training for tank cleaning personnel.

(4) Persons performing hot work. Certification(s) of qualification for performance of applicable hot work.

(5) Test personnel qualification. Certification(s) qualifications for nondestructive testing personnel.

b. Insulation work.

(1) Qualified Person. Provide written designation of the Qualified Person who will take and count samples, monitor personnel, inspect, and certify affected areas are safe to enter.

c. Fluorocarbon use.

(1) Qualified/Competent Person. Certification of the person who will monitor atmosphere, inspect and certify

spaces are safe to enter, and who will supervise these activities.

d. Electrical/Electronic Connector Work.

(1) Qualified personnel. Certification of qualification for all Connector Fabricators, Connector Fabricator Supervisors and Connector Fabrication Quality Assurance Inspector(s).

e. Accomplishment of Nondestructive Testing (NDT).

(1) Qualified personnel. Certification of qualifications for all certified NDT inspectors in the applicable NDT method/methods to be employed.

f. Painting of Critical Surfaces.

(1) Qualified personnel. Certification of qualification for all certified coating inspectors and painters/blasters.

g. Entry into Confined Spaces. Provide written designation of the OSHA certified marine chemist who will inspect atmosphere of confined spaces prior to entry.

h. SUBSAFE work. Workers require qualification and/or certification.

i. ESD Work. Workers require ESD qualification.

j. PCMS Work. Workers require qualification/certification.

1.5 Headquarters Centrally Provided Material (HCPM)

1.5.1 Receipt of HCPM. Provide for receipt of HCPM as follows:

a. When the HCPM is received directly, one signed copy of the Shipping Document (DD Form 1348-1) and one signed copy of the Government Bill of Lading (GBL) shall be retained by the AIT.

b. The HCPM shall be inspected immediately upon receipt to verify conformance with description and requirements, verification of quantity and for possible damage.

c. Notification of the shipping activity of any damage immediately after inspection. Also notify the Headquarters equipment manager and the cognizant SPM if the damage is more than superficial.

d. If the HCPM is electronics equipment, the AIT shall provide testing and calibration of the equipment to verify that the equipment meets operational specifications.

1.5.2 Records of HCPM. Maintain records of the receipt and disposition of each item of HCPM.

1.6 Configuration Status Accounting. Depending on the program, the AIT may be tasked to maintain configuration records of equipment and software so that the ship and equipment managers can maintain configuration control. If configuration status accounting is tasked, the material control process shall provide the following:

1.6.1 Equipment accounting. For each individual equipment (not material) which is received as HCPM or ordered or fabricated by the AIT which is intended to be installed aboard ship, provide and maintain a computerized index of purchase orders, modifications accomplished and final disposition.

1.6.2 Software accounting. For each software item which is to be installed in shipboard equipment, provide and maintain a computerized index of purchase orders, modifications accomplished and final disposition.

1.6.3 Weight Accounting. Depending on the program and the ship class, the AIT may be tasked to maintain a written record of equipment and material removed (weight and installed location) which are not indicated on removal drawings to allow the ship and equipment managers to maintain an accounting of weight changes on weight critical ships. Generally this includes the removal of unused or dead-ended cables, the removal of unused foundations or the removal of unused equipment with associated cables and foundations when such removal is authorized by the ship, the cognizant NSA and approved by the SPM. The material control process shall provide procedures for weight accounting and reporting to the cognizant Planning Yard when required.

APPENDIX E

GUIDANCE FOR DESIGN SHIPCHECKS

GUIDANCE FOR DESIGN SHIPCHECKS

1. General. The purpose of the design shipcheck is to gather as much relevant information as possible about the existing configuration of shipboard equipment, systems and compartments that may be impacted by the accomplishment of an alteration. The information should be as complete and accurate as possible in order to prevent the development of inaccurate or inadequate alteration design or the requirement for a second shipcheck of the ship to gather additional data. Design shipchecks shall be conducted at the ship's convenience on a not-to-interfere basis. Ship availability dates shall be coordinated between the activity developing the installation design and the respective TYCOMs/cognizant NSA.

1.1. Planning Yard participation. When an AIT is performing a design shipcheck in support of the accomplishment of a SHIPALT, participation by the Planning Yard may also be required as specified in the contract or tasking documentation. When Planning Yard participation is required by the contract or tasking documentation, funding for that participation shall be provided by the AIT Sponsor. When the Planning Yard does not participate in an AIT design shipcheck for accomplishment of a SHIPALT, the AIT shall issue a Shipcheck Report to the Planning Yard to allow coordination with other SHIPALT designs that may be under preparation for the applicable ship. Shipcheck Reports are not required to be submitted by AITs for design shipchecks in support of accomplishment of TEMPALTs unless specified in the tasking documentation.

2. Design shipcheck materials. Typical materials that should be considered for a design shipcheck are as follows:

a. Paper prints of the arrangement of equipment and associated foundations and the structural fabrication drawings (when significant bulkhead, deck or overhead work is anticipated) of areas associated with the alteration, ventilation system drawings (when modification of the ventilation duct system is anticipated), cableway fabrication drawings, power system distribution diagrams and system diagrams of all systems expected to be impacted by the accomplishment of the alteration [including Command, Control, Communications, Computer, Intelligence, Surveillance and Recognizance (C4ISR) systems, lighting systems, Interior Communications (IC) system, or support systems (heating, ventilation and air conditioning (HVAC) systems, cooling water system, lubricating oil system, etc.]). If modifications to electronics cooling water or HVAC systems are considered a possibility, piping diagrams of these systems should also be

taken. Include a diagram that indicates the location of the applicable spaces relative to the total ship.

b. Copies of all correspondence between shipcheck activity and TYCOM/cognizant NSA, Squadron/Industrial Activity, and Ship that discuss the shipcheck, including the forwarding of security clearances, and any special arrangements/requirements.

c. Courier pass for carrying classified drawings/-photographs and/or videotapes to and from the site.

3. Procedure. The following is a general procedure that may be used to conduct a design shipcheck on an active fleet ship. During conduct of the shipcheck, all members of the shipcheck team shall wear identification badges, prominently displayed at all times. If the shipcheck is to be conducted on a nuclear ship, each member of the shipcheck team is to wear a thermal luminescent device (TLD), or other radiation-detection device, as directed by the applicable squadron, group or Naval Supervising Activity (NSA).

3.1. Advance Notification. Officially request the TYCOM/cognizant NSA to assign a date for access to the ship to be shipchecked. For TYCOMs which hold AIT Scheduling Conferences, the AIT activity or the AIT Manager should present the proposed shipcheck schedule at the next conference to allow advance notification to applicable ships and the cognizant NSA of the intent to accomplish the alteration. Indicate the purpose of the shipcheck, the number of people expected to participate and the number of days that access will be required. Indicate any required access to secure areas and any special requirements (securing transmitting equipment while shipchecking masts, etc.). The ship, the cognizant NSA and the appropriate squadron or group shall be provided information copies of the request. For shipchecks that are planned to be conducted during a scheduled CNO availability, the AIT shall provide clearance information to the cognizant Ship/NSA a minimum of 5 working days prior to arrival or as established by TYCOM policy.. If the shipcheck is to be conducted outside of a scheduled availability, the AIT shall provide visit clearance information to the cognizant Ship/NSA a minimum of 5 working days prior to arrival or as established by TYCOM policy..

3.1.1. Security clearances. After the TYCOM/NSA has provided the access date(s) for the shipcheck, preferably at least 30 days prior to arrival, the AIT will provide security clearance information to the ship, the TYCOM, the NSA, and appropriate Naval activities. Security clearance information is required a minimum of 5 working days prior to arrival or as established by TYCOM policy.

3.1.2. Check-in. The AIT will check in with the appropriate NSA, to effect security verification, shipcheck schedule verification, and badge issuance prior to proceeding to the shipcheck ship.

3.2. Arrival. Arrival at the ship should be arranged in advance with the cognizant NSA. Generally, arrival will be no earlier than 0830 and no later than 1530 unless previously arranged. Arrival between 1200 and 1300 should also be avoided.

3.2.1. Personnel identification. All required personnel identification should be available upon arrival at the site. Personnel identification shall be clearly visible, worn above the waist at all times when onboard ship and when transiting an industrial area.

3.2.2. Boarding the ship. Depending on the location of the ship at the site, access to the ship may be directly from the pier or via another ship. Personnel identification will generally be noted and recorded at the entrance to the pier or the industrial area and may again be checked when passing through other ships and again will be checked and recorded upon arrival on the ship to be shipchecked. Upon arrival at the ship to be shipchecked, ask for the established ship's point-of-contact or the Command Duty Officer. If neither is available, ask for the Operations Officer or the Work Center Supervisor of the area primarily involved in the shipcheck. State the purpose of the visit and provide a short in brief.

NO MEMBER OF THE TEAM SHALL LEAVE THE QUARTERDECK OR SHIP ENTRY AREA WITHOUT AN ESCORT OR UNTIL PERMISSION TO DO SO IS RECEIVED.

3.3. In Brief. Conduct an in-brief to explain the purpose of the shipcheck, the systems and spaces to be shipchecked and the procedures to be used as follows:

a. Provide a list of all personnel involved in the shipcheck and indicate that member(s) is(are) designated as point(s) of contact for the shipcheck team.

b. Outline the general procedures and approximate schedule for use during the shipcheck.

c. If a camera is intended to be used as part of the shipcheck, request permission to photograph and/or video tape the shipcheck area(s).

d. If it is anticipated that it will be necessary to scrape paint from cable tags or equipment label plates to determine

tag/plate information, especially on weatherdeck cables and equipment, request permission to do so and indicate that a list of the locations where this was done will be provided to the ship at the end of the shipcheck.

e. If normally unmanned or restricted areas of the ship are to be shipchecked, request permission to access these areas during prearranged periods on a not-to-interfere basis.

f. If transmitting systems such as communications or radar systems need to be inhibited or secured to gain safe access to masts, antennas or topside equipment as part of the shipcheck, or if power or other ship services must be secured to a specific equipment to gain safe access to the interior or back of that equipment, request permission for ship's force personnel to inhibit or secure the required equipment during a prearranged period of the shipcheck. Ensure that proper tag-out procedures are followed by the members of the ship's force.

> MEMBERS OF THE SHIPCHECK TEAM SHALL NOT INHIBIT OR SECURE SHIP EQUIPMENT. ENSURE THAT EQUIPMENT HAS BEEN SECURED OR INHIBITED AND THAT PROPER TAG-OUT PROCEDURES HAVE BEEN OBSERVED PRIOR TO GOING ALOFT OR GOING INTO OR BEHIND EQUIPMENT. ENSURE THAT SHIP'S FORCE IS NOTIFIED WHEN A PERSON IS GOING ALOFT OR IS ENTERING OR GOING BEHIND DANGEROUS EQUIPMENT AND WHEN THAT PORTION OF THE SHIPCHECK IS COMPLETED SO CIRCUITS MAY BE RESTORED TO NORMAL OPERATION.

3.4. Shipcheck. Record the name and hull number of the ship being shipchecked and the date on each sheet of each drawing or sketch and all notes that are used or developed during the shipcheck as well as the date(s) of the shipcheck.

3.4.1. Recording physical configurations. Whenever possible, mark-up paper copies of the existing general arrangement drawing(s) of the space(s) to be impacted by the alteration. This will provide a record of the actual configuration of areas where equipment is to be removed or where new equipment is to be installed at the time of the shipcheck. If use of a camera is approved, photograph and/or video tape all critical locations, from more than one vantage point, and all areas that may have special design or installation problems. Place one or more six or eight-foot folding rules with enhanced markings in the areas to be photographed and/or video taped to provide an indication of scale and record critical measurements. For photographs, record the details of each photograph on the back of the photograph (ship identification, space identification and frame number, identification of the view [looking to port-forward from the centerline, etc.], and the subject of the photograph [back of

rack no. 3], etc.) When using a video camera to record shipcheck information, record the data in a film log noting the tape number, ship identification, sequence of recorded data [space identification and frame number, identification of the view {looking to port-forward from the centerline, etc.}, and the subject of the view {back of rack no. 3}, etc.]) Information that may be needed to develop detail installation design includes:

a. Location of all compartments, spaces and areas in the ship that may be impacted by accomplishment of the alteration. This includes the name, compartment number and level of each space as well as all adjacent spaces (including above and below).

b. Within each space:

(1) Overall dimensions of the space.

(2) Measured distance between ship centerline and a specific location in the space (generally the bulkhead nearest the centerline).

(3) Frame member information including frame numbers in the areas of interest, type, construction, and measured separation between adjacent frames.

(4) Details of bulkhead and partition construction, including type, material and contour. Determine and note if bulkheads are part of watertight, airtight, fumetight, light tight, fire zone, air conditioning, Collective Protection System (CPS) boundary, and/or TEMPEST physical or electrical perimeter boundaries.

(5) Details of bulkhead and partition support members including type, material, size and spacing.

(6) Location and measured details of all structural interferences within the space.

(7) Details of overhead construction (including main support beams), including type, material, contour and measured distance above the deck at the corners of the space and at other locations within the space. Determine and note if the overhead is part of watertight, airtight, fumetight, light tight, fire zone, air conditioning, CPS boundary, and/or TEMPEST physical or electrical perimeter boundaries.

(8) Details of deck construction (including support beams), including type, material and contour. Determine and note if deck is part of watertight, airtight, fumetight,

light tight, fire zone, air conditioning, CPS boundary, and/or TEMPEST physical or electrical perimeter boundaries.

(9) Location and details of all doors, hatches, and scuttles including type, material, size and swing. Determine and note if doors and hatches are part of watertight, airtight, fumetight, light tight, fire zone, air conditioning, CPS boundary, and/or TEMPEST physical or electrical perimeter boundaries.

(10) Location and details of all stanchions including type and size.

(11) Location and details of all pipe runs including pipe size, service, distances from overhead at various locations, distance from nearest bulkhead at various locations, and penetration locations.

(12) Location and details of all waveguide runs including waveguide type/dimensions, service (radar, EW, etc.), distances from overhead at various locations, distance from nearest bulkhead at various locations, and penetration locations.

(13) Location and details of all vent duct runs including duct type/dimensions, service, distances from overhead at various locations, distance from nearest bulkhead at various locations and penetration locations.

(14) Location and details of all cableways including type, construction, routing, distances from overhead at various locations, distance from nearest bulkhead at various locations, available space, and penetration locations (stuffing tubes, riser boxes and bulkhead/deck coamimgs).

(15) Locations and measured details of all fabricated equipment foundations (measurements referenced to centerline/-bulkhead and height above the deck). Indicate equipment mounted on foundation.

(16) Locations, details and identification of all power, lighting, and Interior Communications (IC) distribution panels and switchboards, including type (symbol number), panel or switchboard number, service, distribution data, distance of the bottom of the enclosure to the deck, and distance from an outside edge of the enclosure to the nearest bulkhead.

(17) Locations, details and identification of all power, lighting, and IC fixtures (including connection boxes

and power outlets) that are not rack mounted, including type (symbol number), service, system identification data, distance of the bottom of the fixture to the deck (or overhead for overhead mounted equipment), and distance from the outside edge of the fixture to the nearest bulkhead.

(18) Identification and measured location of all other permanent equipment including:

(a) Racks and all equipment mounted in the racks. Include space between back of rack and bulkhead (or nearest structure) and space between front of rack and nearest rack, equipment or structure if less than five feet. Also note any pull-out, swing-out, or special access clearances that must be maintained.

(b) Shelf mounted equipment.

(c) Bulkhead, deck and overhead mounted equipment.

(d) Desks and tables including type, size, and fabrication.

(e) Fiddle boards including type, size, and fabrication.

(f) Plotting tables including type, size, and fabrication.

(g) Status or display panels including type, size, and fabrication.

(h) Workbenches including type, size, and fabrication.

(i) Storage containers (safes, lockers, cabinets, book shelves, bins, etc.) including type, size, and fabrication.

(j) Chairs, stools and benches including type, size, and fabrication.

(k) Administrative support equipment (copiers, shredders, sorting bins/trays, etc.) including type, size, and fabrication.

Note specifically the model (R-2368A/URR, etc.) and variant (AN/WSC-3(V)3, etc.) of the equipment, as applicable.

(19) Identification and measured location of all other permanent equipment which may require removal as interferences during accomplishment of the alteration. Systems and equipment required to be permanently modified or relocated to accommodate the alteration are not to be considered interferences but part of the design of the alteration.

c. Within adjacent spaces (including above and below), the measured locations of cable, pipe, waveguide, and vent duct penetrations that may be impacted by the alteration. Determine possible access problems and special requirements such as fire watches, equipment protection, interference removal, etc., that may be needed in these spaces when the alteration is accomplished.

d. Where cables will be removed or installed in cableways outside of the primary areas impacted by the alteration, these cableways shall also be shipchecked. For cableways that will have existing cable(s) permanently removed, the required information includes measured cableway routing, general cableway construction, penetrations that need to be plugged/filled, and general accessibility. For cableways that will have new cables installed, the required information includes measured routing of the cableway, general construction, existing spare capacity, spare penetrations that can be reused or measurements of locations where new penetrations can be installed, and locations where existing cableway hangers need to be modified or replaced or where new hangers will be required.

e. Where modifications to ship's weatherdeck structure are required or the arrangement of weatherdeck equipment is impacted by the accomplishment of an alteration. Required information may include:

(1) Detailed measurements to all antennas, damage control equipment, and replenishment stations within 30 feet of the impacted structure or equipment will be required. Record the identification of all such equipment/stations that fall within this radius.

(2) Detailed measurements to all CPS and Countermeasure Washdown System (CMWDS) components and boundaries within 30 feet of the impacted structure or equipment will be required. Record the identification of all such components that fall within this radius.

(3) Material composition of ship's structure (steel, aluminum, etc.).

(4) Types, sizes, and locations of structural beams supporting the deck and structure in the vicinity of proposed new structure or equipment location(s). Determine interior structure and equipment that may be immediately inside the ship from the proposed location(s).

(5) Possible location(s) for required cable penetration(s) for new or relocated equipment. Determine possible interior installation/access problems associated with new penetrations.

(6) EMC and EMP protection measures that may be required.

(7) Measured cable routing through interior and exterior cableways for all cables from new or relocated equipment to the primary termination (power or control, etc.). Determine locations where conduit, penetrations, cable protection, etc., will be required to meet all physical protection, EMI, RFI, EMC, EMP and TEMPEST requirements. Determine what modifications to existing cableways will be required. Where the most direct cable run does not appear to be practicable for an AIT installation or where portions of the proposed cable run could not be visually observed as part of the shipcheck and the actual condition of the existing cableway is unknown, identify possible alternate cable runs with the above information.

(8) Photographs and/or video tapes of the proposed new or modified structure or equipment location(s), all surrounding antennas, equipment and structure, and the entire proposed cable run(s).

f. Where antennas are to be installed or relocated as part of the alteration, detailed measurements must be made not only for the new antenna location but also for the routing of the antenna cables. Required information may include:

(1) Identification of all antennas (type, function [communications, radar/IFF, EW, CIWS, special function, etc.] and antenna identification number) and all permanent weatherdeck equipment and ship's structure within 30 feet of the proposed new antenna location.

(2) Measured distances from new antenna location to existing antennas, permanent weatherdeck equipment, and ship's structure within 30 feet of the proposed new antenna location.

(3) Material composition of ship's structure (steel, aluminum, etc.)

(4) Type, size, and locations of structural beams supporting the deck and structure in the vicinity of the proposed new antenna location. Determine interior structure and equipment that may be immediately inside the ship from the proposed location.

(5) Possible location(s) for required cable penetration(s). Determine possible interior installation/access problems associated with new penetrations.

(6) Measured cable routing through interior and exterior cableways for all antenna cables from the antenna to the primary termination (receiver, transmitter, coupler, RF distribution panel, etc.). Determine locations where conduit, penetrations, cable protection, etc., will be required to meet all physical protection, EMI, RFI, EMP, EMC and TEMPEST requirements. Determine what modifications to existing cableways will be required. Where the most direct cable run does not appear to be practicable for an AIT installation, or where portions of the proposed cable run could not be visually observed as part of the shipcheck and the actual condition of the existing cableway is unknown, identify possible alternate cable runs with the above information.

(7) Photographs and/or video tapes of the proposed new antenna location(s), all surrounding antennas, equipment and structure, and the entire proposed RF and control cable run(s). Take photographs and/or video tapes of the proposed new antenna location from the pier area or from another ship (from a distance) to clarify the relationship of the proposed antenna location(s) to the rest to the ship.

3.4.2. Determining configurations of electrical/electronic systems. Whenever possible, mark-up paper copies of the existing system diagrammatic drawing(s) (block, isometric or cabling deck plan) of the individual systems to be impacted by an alteration. This will provide a record of the actual configuration of those systems at the time of the shipcheck. It is important to determine and record all equipment, components, and cabling to be impacted by the alteration. Information that may be required to develop detailed design includes:

a. All equipment that could be removed or require relocation as a result of the accomplishment of the alteration.

Note specifically the model (CU-2279A/U, etc.) and variant (AN/WSC-3(V)3, etc.) of the equipment, as applicable.

b. All components (panels, connection boxes, transition devices, etc.) that could be impacted. Identify transformers planned for removal or relocation that could contain PCBs and therefore require special handling and disposal as hazardous material.

c. All cabling and cabling components that are part of the system that could be impacted. These include:

(1) All cabling, identified by circuit identification number and cable type. For cables to be removed or relocated identify cable insulating material (older cables may contain asbestos or other hazardous material and will require special handling and disposal as hazardous material).

(2) All connectors by type and connection to equipment or components (J1, etc.).

(3) All in-line devices (tees, dividers, combiners, transition fittings, etc.) by type/nomenclature.

(4) All impacted (existing or required new) cable penetrations (equipment, bulkhead, or deck stuffing tubes, strain relief, etc.) by type, size, material, and construction (kickpipes, gang or multiple penetrator, etc.) For existing penetrations and tubes, record penetration hole number/location identification number if assigned. Record also any existing spare penetrations that could be used for new cabling. Indicate locations where new penetrations will be required.

(5) If an isometric or deck cabling diagram is to be prepared for the ripout diagram and/or the alteration cabling diagram, note also the general routing of the cabling through the cableways (including special cable routing requirements - physical protection, major obstructions, ship expansion joints, EMI/EMP/TEMPEST protection, etc.), and the general location of all penetrations and stuffing tubes.

d. All existing waveguide and waveguide components (bends, transitions, etc.) that are to be impacted by the alteration and all special design considerations while will need to be addressed as part of the alteration design (major interferences that will need to be relocated, modified or routed around when new

waveguide is installed, maintenance access plate locations, locations of new bends or fittings, etc.).

3.4.3. Recording configurations of mechanical systems. Whenever possible, mark-up paper copies of the existing system diagrammatic drawing(s) of the individual mechanical systems to be impacted by an alteration. This will provide a record of the actual configuration of those systems at the time of the shipcheck. It is important to determine and record all equipment, components, and piping to be impacted by the alteration. Information that may be required to develop detail design includes:

a. All equipment that could be removed or relocated as a result of the accomplishment of an alteration. Note specifically the model and or type identification of the equipment, as applicable.

b. All components (indicator/control panels, sensors, limit switches, etc.) that are part of the system that could be impacted.

c. All piping and piping components that are part of the system that could be impacted. This includes:

(1) All piping, identified by system identification, type, size and length.

(2) All valves, identified by system identification, type, size and application.

(3) All fittings (elbows, tees, transition fittings, check valves, filters, hoses, etc.) by type and size.

(4) All piping penetrations by type and size. Record penetration number/location identification number if assigned. Record also any spare penetrations that could be used for new piping.

(5) All piping insulation which must be removed, relocated or replaced, even as interferences (older insulation may contain asbestos or other hazardous material and will require special handling and disposal as hazardous material).

d. All bulkhead or deck insulation which must be removed, even to gain access to interference items (older insulation may contain asbestos or other hazardous material and will require special handling and disposal as hazardous material).

3.5. Shipcheck completion. Upon completion of the shipcheck, collect all materials used for the shipcheck and prepare to depart the ship. Ensure that all equipment and component access panels that were opened or disturbed are restored to their proper position. Ensure that all materials and portable equipments where were temporarily removed to gain access to items to be shipchecked are restored to their original locations and are stowed to the satisfaction of the crew. Ensure that all shipcheck-generated trash is picked up and properly disposed of.

3.6. Departure. When departing the ship at the completion of the shipcheck, notify the ship's point-of-contact or other assigned member of the crew that the shipcheck has been completed and offer (and be prepared) to provide an out-briefing on the information gathered/determined as part of the shipcheck. Allow a review of all photographs and/or videotapes for possible classification prior to departure from the ship. When departing an industrial activity, inform the NSA of the departure. All special badges, passes, dosimeters, etc, will be turned-in, as required, in accordance with local requirements. Prior to final departure from the area, check out with the cognizant NSA.

APPENDIX F

SHIP’S FORCE IN-BRIEF

SHIP'S FORCE IN-BRIEF

Purpose. The purpose of a Ship's Force in-brief is to provide an overview and purpose of the alteration to be accomplished, outline work to be performed, review the schedule of accomplishment and the impact on the ship, confirm arrangements for requested/required services, establish responsibilities and points of contact, review planned ship's evolutions and review ILS products and training to be provided.

1. Alteration Overview. The overview provides a description of the alteration purpose and the expected improvements provided, areas of the ship impacted by the alteration and additional areas impacted by the accomplishment of the alteration and the impact on ship's services.

2. Work to be accomplished.

a. Review of installation drawings.

(1) Arrangement drawing(s) indicating equipment to be removed and locations of new, modified and relocated equipment.

(2) System drawing(s) indicating system interconnections and interfaces with ship system interfaces including power and ventilation.

(3) Cable and/or pipe runs.

b. Review of equipment and materials to be used.

(1) Review of equipment and material to be installed.

(2) Review of equipment and material to be removed

(3) Review of hazardous materials to used or removed and handling and disposal procedures.

c. Review of ship's systems impacted during alteration accomplishment and duration of impact.

d. Review of areas that may have restricted access during alteration accomplishment.

(1) Areas where welding is to be accomplished.

(2) Areas where hazardous materials are to be used or handled.

e. Review of applicable process control procedures to be used for fire prevention, hot work, sight and hearing protection, protection of pipes, cables, and equipment during shipwork, system or equipment deactivation/reactivation, material storage at the work site, storage, use and disposal of hazardous materials (including excess and partially used hazardous material and hazardous material removed as part of the accomplishment of the alteration), material for staging and screening, temporary covers and shelters, uncrating/unpacking of equipment and workmanship.

f. Review of personnel qualification/certifications for work requiring specific qualifications.

Schedule of events. A detailed review of schedule-of-work and test plan and/or System Operational Verification Testing (SOVT) agenda of all functional items shall be provided during the briefing. Key event checkpoints (e.g. piping flush, hydrostatic testing, cableway and compartment closeout, etc.) and system operational testing of all functional items will be provided for ship witnessing. The material deliveries, required compartment accesses, security requirements, and shift schedules will also be discussed at this time. The schedule information shall include projected start and finish dates, planned shift start time(s), planned testing periods, planned training dates and planned ILS turnover.

Planned ship’s evolutions. Any special restrictions due to ship's evolutions during the availability (weapon loading, ship's receiver/transmitter testing, emergent requirements, other alterations being accomplished, etc.) which could impact or be impacted by work being performed by the AIT will also be discussed at this time. It will be the responsibility of the AIT to perform required shipwork around these restrictions. If restrictions exist which can not be accommodated by the AIT without jeopardizing scheduled completion date of the alteration or the scheduled departure date of the ship, the AIT will make arrangements with the cognizant NSA for accomplishment of the alteration during a subsequent availability and withdraw from the ship.

Confirmation of services. AIT arrangements for crane and/or welding services, special test requirements, fire watches, etc., will also be confirmed at this time. For alterations being accomplished during CNO availability, arrangements and associated funding for services included in the contract (if the alteration is to be accomplished at a private activity) (crane services,

welding services, special test requirements, fire watches, NSA disposal of turned-in equipment/material, etc.) will also be confirmed at this time.

Points-of-contact. The AIT On-site Installation Coordinator shall request the ship to provide the AIT with a list of all points-of-contact for accomplishment of the alteration(s), including those technical personnel assigned to work with the AIT and witness testing, the names of those people authorized to sign-off the Alteration Completion Report and the names of personnel authorized to accept delivery of computer tapes and ILS items. For alterations being accomplished during CNO availability, the NSA representatives, Planning Yard On-Site Representatives (Program Representative and CDM) and the lead ship availability manager from the industrial activity will also be identified. For alterations being accomplished during a CNO availability, the AIT On-site Installation Coordinator will also identify which AIT member(s) will attend daily progress meetings.

Responsibilities. The AIT On-site Installation Coordinator will be identified as being responsible for the conduct of the AIT and the person to be contacted in regard to work deficiencies, scheduling problems or problems with AIT members. The AIT On-site Installation Coordinator shall be responsible for being accessible to ship’s force throughout the period(s) the AIT is on board the ship for resolution of identified deficiencies or problems associated with accomplishment of the assigned alteration(s). When work is being accomplished during a CNO availability, the AIT On-site Installation Coordinator shall also be accessible to the NSA and the lead ship availability manager at all times during period(s) the AIT is on board the ship. The AIT On-site Installation Coordinator shall be responsible for reporting any changes in schedule and providing notification to the ship, and the NSA of upcoming key event checkpoints and testing evolutions. Additionally, the AIT On-site Installation Coordinator(s) shall be identified. If multiple-shift work is to be accomplished, the Coordinator for each shift shall be identified.

ILS and training to be provided. The AIT will review all ILS products to be provided as well as all training to be provided at the time of installation. All applicable ILS elements listed in the ILS portion of the Alteration Completion Report shall be addressed.